2001 British Columbia Annual Summary of Reportable Diseases

BC Centre for Disease Control

Excellence Program

2000 Silver Level Recipient

104-05803/

BC Centre for Disease Control

Cover: Island reflecting in the Skeena River
Above photo: BC Centre for Disease Control - 655 West 12th Avenue, Vancouver BC, V5Z 4R4
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Executive Summary

Diseases Preventable by Routine Vaccination • Six cases of invasive ***Haemophilus influenzae* type b (Hib)** disease were reported in 2001. Rates have been low since the introduction of the infant conjugate Hib vaccine program in 1993. Four of the 6 cases were in adults. Two were in male infants aged 6 and 8 months. Neither of these infants had been vaccinated against Hib; both had meningitis.

The annual number and rate of reported **acute hepatitis B** in 2001 continued a declining trend observed since 1994. In 2001, the crude rate in British Columbia (2.4 per 100,000) was almost half the Canadian rate (4.4 per 100,000). Significantly, no cases of acute hepatitis B were reported in children or youth under 20 years of age.

The proportion of sentinel physician visits due to **influenza-like illness (ILI)** was well below the historical mean until mid-February, 2002 at which time the percentages were consistent with the historical mean.

There were a total of 269 (17.7%) influenza isolates out of a total of 1520 specimens tested; 262 (97%) were influenza A and 7 (3%) were influenza B.

Forty-seven isolates were sent the National Microbiology Laboratory for strain characterization; 42 (89%) were characterized as A/Panama/2007/99-like, 4 (9%) were characterized as B/Hong Kong/22/2001, and 1 (2%) was characterized as B/Sichuan/379/99-like.

A new strain of influenza A virus (H1N2) was isolated in Canada during the 2001-2002 season.

As the new strain is a combination of the two components present in the two A strains currently contained in the vaccine, this season's vaccine was expected to provide good protection against the A (H1N2) virus.

Compared to the 2000-2001 season, the number of ILI outbreaks reported to BCCDC was substantially higher despite lower community level activity compared to historic rates. Influenza A was isolated in 38 (90%) of the 42 LTCF/hospital outbreaks reported; one facility had both influenza A and parainfluenza isolated.

A total of 23 cases of **measles** were reported in 2001, including 4 sibling pairs. Most cases had a history of no prior measles vaccination. An additional 3 had unknown measles immunization status. The remaining 5 had a history of one prior dose of measles-containing vaccine. No cases were reported among two-dose recipients.

Twenty-five cases of **mumps** were reported in 2001 for a rate of 0.6 per 100,000.

Pertussis activity in general decreased during 2001 relative to 2000.

The incidence of pertussis was highest in 10-14 year old children (85 per 100,000) during 2000 and once more exceeded the rate observed in infants (79 per 100,000) or pre-school children 1-4 years of age (30 per 100,000). Ten year old children experienced the highest rates of pertussis during 2000 (112 per 100,000).

Only two cases of **rubella** were reported in BC in 2001, the same as in 2000. No cases were reported among women of child-bearing age.

Sexually Transmitted Disease and Blood Borne Pathogens • The BC rate of 0.9 per 100,000 population of newly reported **AIDS** continues to decline. The largest number of cases continues to be in Vancouver and the highest rate per 100,000 population remains in Coast Garibaldi.

In 2001 the rate of reported genital **chlamydia** infection was 143.7 per 100,000 population. This is a 5.6% decrease from the 2000 rate of 152.3 per 100,000 population but is still an 8.5% increase over the 1999 rate of 132.4 per 100,000 population. The majority of female cases continue to occur in 15 to 24 year old age groups and the majority of male cases are in the 20 to 29 year old group.

In 2001 the rate of reported **gonorrhea** infection was 15.1 per 100,000 population. This is a 15% decrease in rate from the 2000 rate of 17.8 per 100,000 population. This is still an 11.9% increase over the 1998 rate of 13.5.

The annual number and rate of reported **hepatitis C** in 2001 continued a declining trend observed since 1997. In 2001, the crude rate in British Columbia (108 per 100,000) remained 2.6 times higher than the Canadian rate (42 per 100,000). The trend in the year-to-year rate of reported hepatitis C in British Columbia, peaking in 1997, is likely related to testing and reporting. Since most acute hepatitis C has an asymptomatic or non-specific clinical presentation, and the natural history of hepatitis C disease can extend over many decades, most reported cases represent chronic infection.

For the first time since 1994 the rate per 100,000 population of newly positive **HIV** tests increased from 10.2 in 2000 to 10.7 in 2001.

The outbreak of infectious **syphilis** has continued through 2001. The rate per 100,000 population increased from 2.4 to 4.3 and the numbers of cases increased from 96 cases to 177 cases. The syphilis outbreak in Vancouver is concentrated in the Downtown Eastside.

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Diseases Transmitted by Direct Contact and Respiratory Routes • Fifty-three cases of **invasive meningococcal disease (IMD)** were reported in 2001, representing a crude reported incidence of 1.3 per 100,000. The number and rate were more than twice that reported in 2000 and mirror a Canadian trend of rising IMD since 1998. Twenty-eight of 53 cases (53%) were serogroup C, of which 14 cases (50%) occurred in the age group 15 to 29 years of age. Seven cases and 2 deaths also occurred in this same age group during an outbreak of serogroup C IMD in the Abbotsford area in 2001.

In 2001, British Columbia reported 185 cases of **invasive pneumococcal disease (IPD)**, for a rate of 4.5 per 100,000 population. This is double the rate of 2.3 per 100,000 population seen in 2000, when 93 cases were reported. In 2000, the case definition was broadened, as it had previously been limited to pneumococcal meningitis. It is possible that some of the increase in reporting in 2001 is due to more complete and consistent reporting of the other forms of invasive pneumococcal disease.

In 2001, the pneumococcal immunization program using the 23-valent polysaccharide vaccine was expanded to include all persons 2 to 64 years of age who are at high risk of invasive pneumococcal disease.

One hundred and twelve cases of invasive group **A streptococcal (GAS)** disease were reported in 2001, a doubling in reported incidence over the previous year. Necrotizing fasciitis was reported in 21 (19%) of the cases, streptococcal toxic shock syndrome in 6 (5.4%) of cases. Ten percent of reported cases were fatal.

In 2001 there were 391 cases for a rate of 9.54 per 100,000 of active **tuberculosis** reported in British Columbia, a 35% increase in the number and rate of reported cases compared to 2000. This increase could be partly explained by the recent changes in the reporting methods.

Leprosy is reported only sporadically in B.C. with no more than 2 cases reported annually since 1994.

The rate of reporting of **MRSA** isolates increased to 28.0 per 100,000 in 2001.

The rate of reporting of **VRE** isolates declined from 1.1 to 0.8 per 100,000 between 2000 and 2001.

It is not clear what proportion of the results represent disease rather than colonization episodes.

Starting 2002, B.C. microbiologists have agreed to assist BCCDC with an alternate tracking strategy for MRSA and VRE which will be informed by test-based denominators and clinical context where possible.

Enteric, Food, and Water Borne Diseases • Reporting of **amebiasis** showed a slight increase in 2001, but the overall year to year rate has remained relatively stable.

Two confirmed cases of **botulism** were reported in 2001, both in North West. The two cases were associated with consumption of fermented fish eggs.

Reporting of **campylobacteriosis** declined to its lowest since 1992. This decline is artifactual as it coincides with the introduction of a provincial guideline in the late 1990s for reduced stool testing for patients with diarrhea. In 2001, there were 2100 reports for a rate of 51.3 cases per 100,000.

One hundred and sixty-seven cases were reported for a rate of 4.1 cases per 100,000. The reporting rate has remained relatively stable since a peak year in 1996 when 4 outbreaks occurred. No waterborne outbreaks of **cryptosporidiosis** were identified in 2001 in BC.

Reporting of *Cyclospora cayetanensis* infections rose to 39 cases in 2001, the highest level ever in BC. Most cases of **cyclosporiasis** are related to travel to regions of the world where the disease is endemic.

An outbreak of 18 cases occurred in Vancouver during May and June. Thirty percent of cases were of Vietnamese ethnicity. A case control study associated the outbreak with consumption of uncooked Thai basil, an ingredient in some Vietnamese foods.

Reporting of **Verotoxigenic *E coli* Infection** fell in 2001 to the lowest level in a decade at 133 cases for a rate of 3.2 cases per 100,000.

Giardiasis reports have continued to fall since 1990 and are now 50 percent lower than in 1992. In 2001, eight hundred and thirty-three cases were reported for a rate of 20.3 cases per 100,000. No waterborne outbreaks were identified during the year.

The annual number and rate of reported (acute) **hepatitis A** in 2001 continued a declining trend observed since 1996. Nevertheless, the crude rate in 2001 in British Columbia (2.3 per 100,000) remained 77% higher than the Canadian rate (1.3 per 100,000). During 2001, the provincial hepatitis A immunization program was extended, offering publicly funded vaccine to men who have sex with men and persons with chronic liver disease, including chronic hepatitis B.

Five cases of **listeriosis** were reported in 2001, all in adults 30 years of age and older. No outbreaks were reported.

Executive Summary

Enteric, Food, and Water Borne Diseases - continued •

Reporting of **salmonellosis** has remained stable over the past 5 years, after a downward trend over the preceding decade. Six hundred and seventy-eight cases were reported in 2000 for a rate of 16.5 cases per 100,000.

An outbreak of 143 *Salmonella* Enteritidis infections affected BC and 4 other Canadian provinces in 2001. A case-control study and laboratory testing associated the outbreak with raw, whole natural almonds.

BC was also affected by an international outbreak of *Salmonella* Stanley infections in 2001. The outbreak was associated with consumption of imported Chinese peanuts.

Shigellosis reporting rose to its highest level in 4 years. There were 251 cases reported for a rate of 6.1 cases per 100,000 population.

The majority of shigellosis cases are in travellers. Two outbreaks of *Shigella* infections not related to travel were identified in BC in 2001:

- Repeat clusters of *Shigella sonnei* infections were identified among men who have sex with men (MSM) in the lower mainland, particularly in Vancouver.
- In May and June, a provincial outbreak of *Shigella sonnei* infections occurred. A case-control study associated the outbreak with eating or handling fresh, locally produced, spinach.

No cases of **trichinosis** were reported in 2001.

Eighteen cases of **typhoid fever** were reported in 2001.

Eleven cases of ***Vibrio parahaemolyticus*** gastroenteritis were reported in 2001 for a rate of 0.3 cases per 100,000 population. Six cases were related to eating raw bivalve shellfish purchased in local restaurants or stores.

Yersiniosis reporting fell by 29% from the previous year to its lowest level in more than a decade. There were 727 cases reported during 2001 for a rate of 17.7 cases per 100,000 population.

Vectorborne and Other Zoonotic Diseases • No cases of **Hantavirus Pulmonary Syndrome** were reported in 2001.

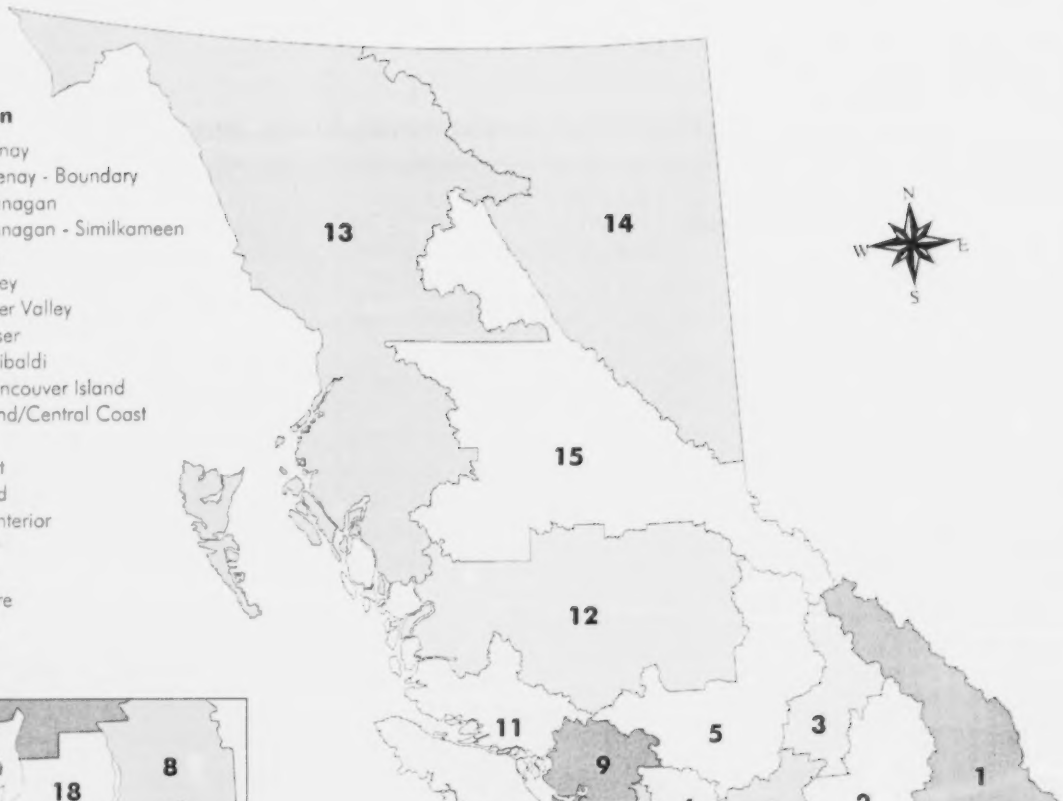
Three cases of **Lyme** disease were reported in 2001. One case was associated with exposure on Vancouver Island, and one case was associated with a tick bite in Europe. Exposure information was not available for the third case.

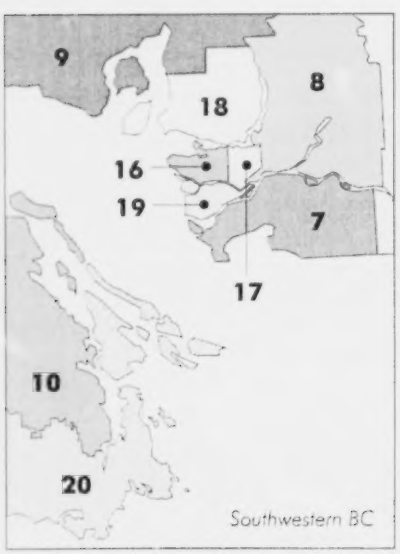
Malaria reporting has remained low for the past 5 years following a peak in the years 1995 through 1997. In 2001, forty cases were reported for a rate of 1.0 case per 100,000 population.

BC Map by Health Region

Health Region

1 East Kootenay
2 West Kootenay - Boundary
3 North Okanagan
4 South Okanagan - Similkameen
5 Thompson
6 Fraser Valley
7 South Fraser Valley
8 Simon Fraser
9 Coast Garibaldi
10 Central Vancouver Island
11 Upper Island/Central Coast
12 Cariboo
13 North West
14 Peace Liard
15 Northern Interior
16 Vancouver
17 Burnaby
18 North Shore
19 Richmond
20 Capital





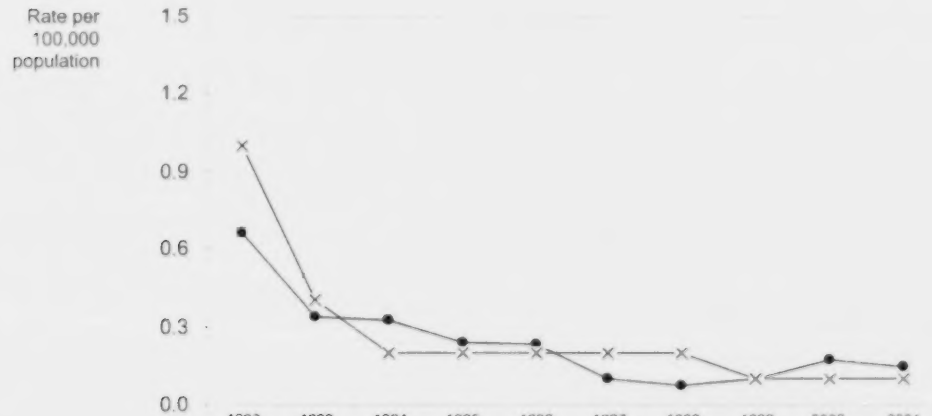
Note: Simon Fraser/Burnaby and Vancouver/Richmond are shown as separate health authorities on this map.

Diseases Preventable by Routine Vaccination

Haemophilus influenzae type b (Hib), invasive

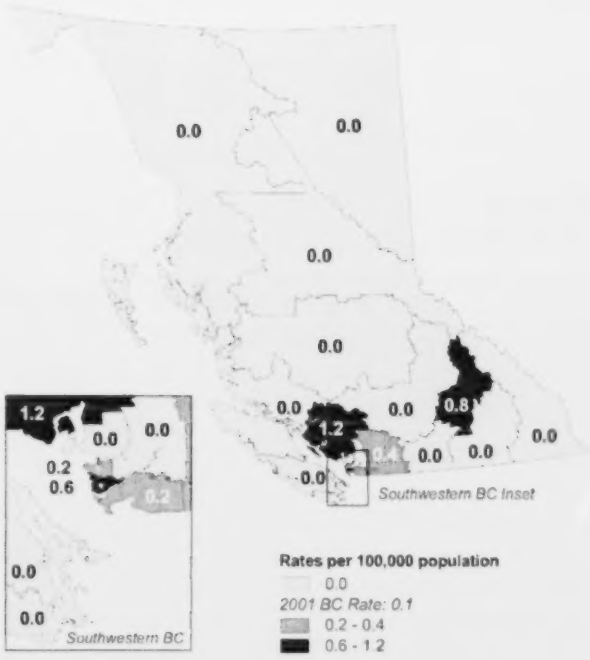
Six cases of invasive Haemophilus influenzae type b (Hib) disease were reported in 2001. Rates have been low since the introduction of the infant conjugate Hib vaccine program in 1993. Four of the 6 cases were in adults. Two were in male infants aged 6 and 8 months, one in South Fraser and the other in Fraser Valley. Neither of these infants had been vaccinated against Hib; both had meningitis.

Haemophilus influenzae type b (Hib), invasive Rates by Year, 1992-2001



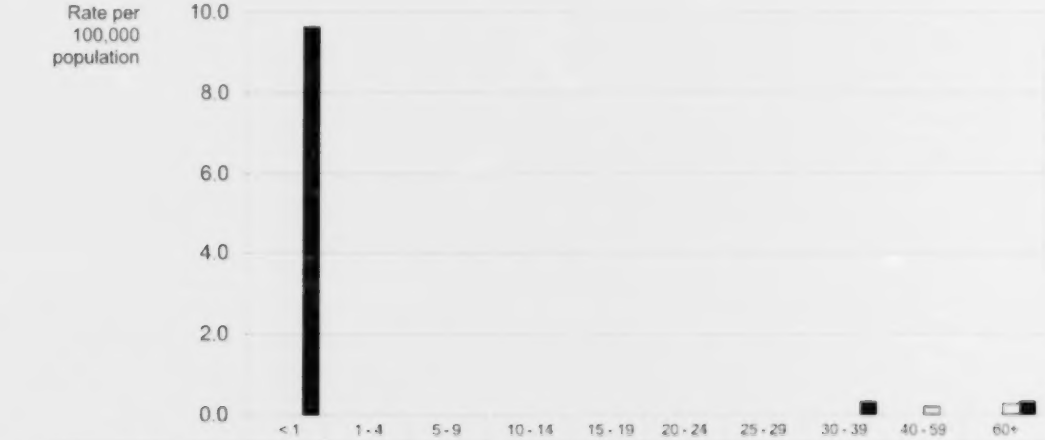
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Invasive Hib Reports	23	12	12	9	9	4	3	4	7	6
—●— BC Invasive Hib Rate	0.7	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1
—X— Canadian Hib Rate	1.0	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1

Haemophilus influenzae type b (Hib), invasive Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	1	0.8
4	South Okanagan - Similkameen	0	0.0
5	Thompson	0	0.0
6	Fraser Valley	1	0.4
7	South Fraser Valley	1	0.2
8	Simon Fraser	0	0.0
9	Coast Garibaldi	1	1.2
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	1	0.2
18	North Shore	0	0.0
19	Richmond	1	0.6
20	Capital	0	0.0

Haemophilus influenzae type b (Hib), invasive Rates by Age Group and Sex, 2001

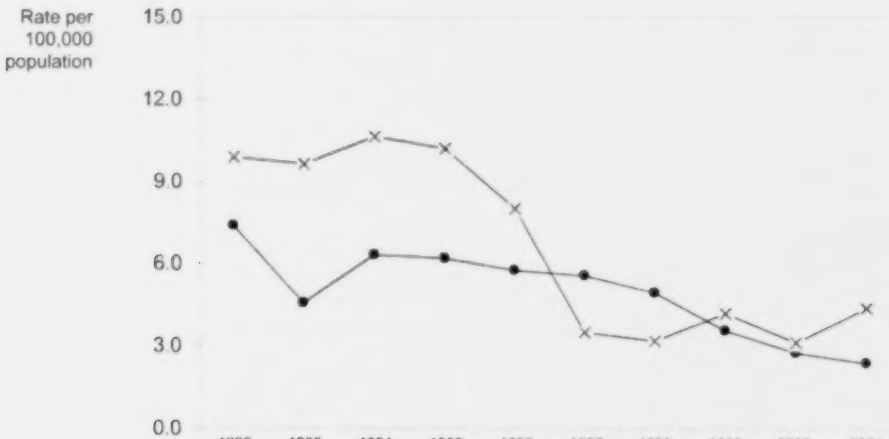


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Invasive Hib Reports - Female	0	0	0	0	0	0	0	0	1	1
Invasive Hib Reports - Male	2	0	0	0	0	0	0	1	0	1
Invasive Hib Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
Invasive Hib Rate - Male	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3

Hepatitis B

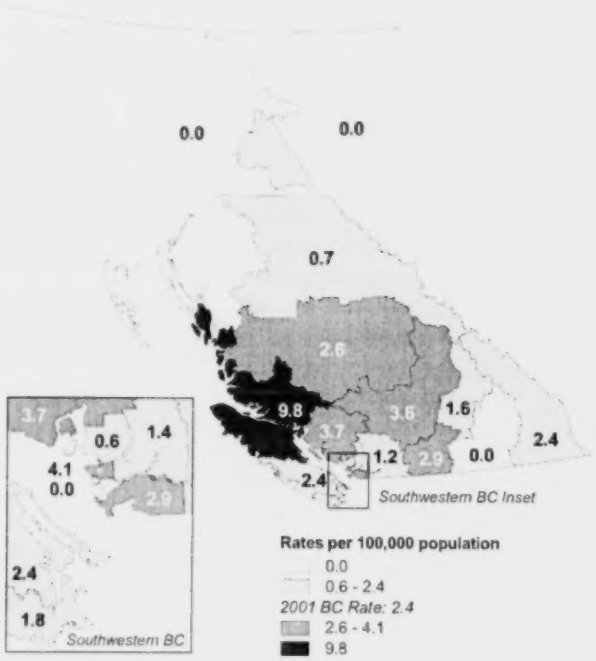
The annual number and rate of reported acute hepatitis B in 2001 continued a declining trend observed since 1994. Over this 7 year period, the rate of reported acute hepatitis B decreased by 62% and in 2001, the crude rate in British Columbia (2.4 per 100,000) was almost half the Canadian rate (4.4 per 100,000). Significantly, no cases of acute hepatitis B were reported in children or youth under 20 years of age. Implementing a universal infant hepatitis B immunization program in BC in 2001, along with expanded eligibility of publicly funded hepatitis B vaccine for high risk children, will provide long term protection of young British Columbians against hepatitis B. The highest age-specific rates of acute hepatitis B were reported in adults 20 to 29 years of age, and males accounted for 68 of 98 (69%) of cases of reported acute hepatitis B. Both findings likely reflect behavioural practices (e.g., injection drug use and male sexual activity) that put young adults and males in particular, at increased risk of hepatitis B.

Acute Hepatitis B Rates by Year, 1992-2001



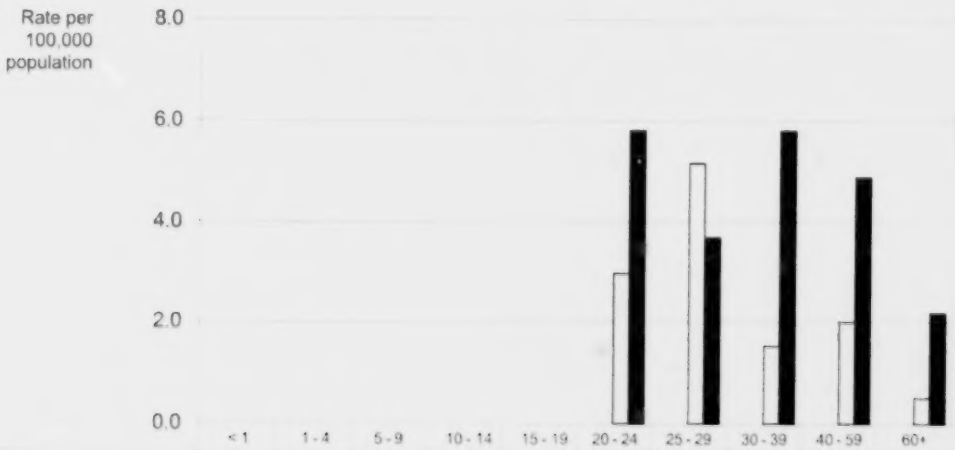
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Hepatitis B Acute Reports	255	163	232	233	224	221	197	143	113	98
BC Hepatitis B Acute Rate	7.3	4.6	6.3	6.2	5.8	5.6	4.9	3.6	2.8	2.4
Canadian Hepatitis B Rate	9.9	9.6	10.6	10.2	8.0	3.5	3.2	4.2	3.1	4.4

Acute Hepatitis B Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	2	2.4
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	2	1.6
4	South Okanagan - Similkameen	7	2.9
5	Thompson	5	3.6
6	Fraser Valley	3	1.2
7	South Fraser Valley	17	2.9
8	Simon Fraser	7	1.4
9	Coast Garibaldi	3	3.7
10	Central Vancouver Island	6	2.4
11	Upper Island/Central Coast	12	9.8
12	Cariboo	2	2.6
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	1	0.7
16	Vancouver	24	4.1
18	North Shore	1	0.6
19	Richmond	0	0.0
20	Capital	6	1.8

Acute Hepatitis B Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Hepatitis B Acute Reports - Female	0	0	0	0	0	4	7	5	12	2
Hepatitis B Acute Reports - Male	0	0	0	0	0	8	5	19	29	7
□ Hepatitis B Acute Rate - Female	0.0	0.0	0.0	0.0	0.0	3.0	5.1	1.5	2.0	0.5
■ Hepatitis B Acute Rate - Male	0.0	0.0	0.0	0.0	0.0	5.8	3.7	5.8	4.9	2.2

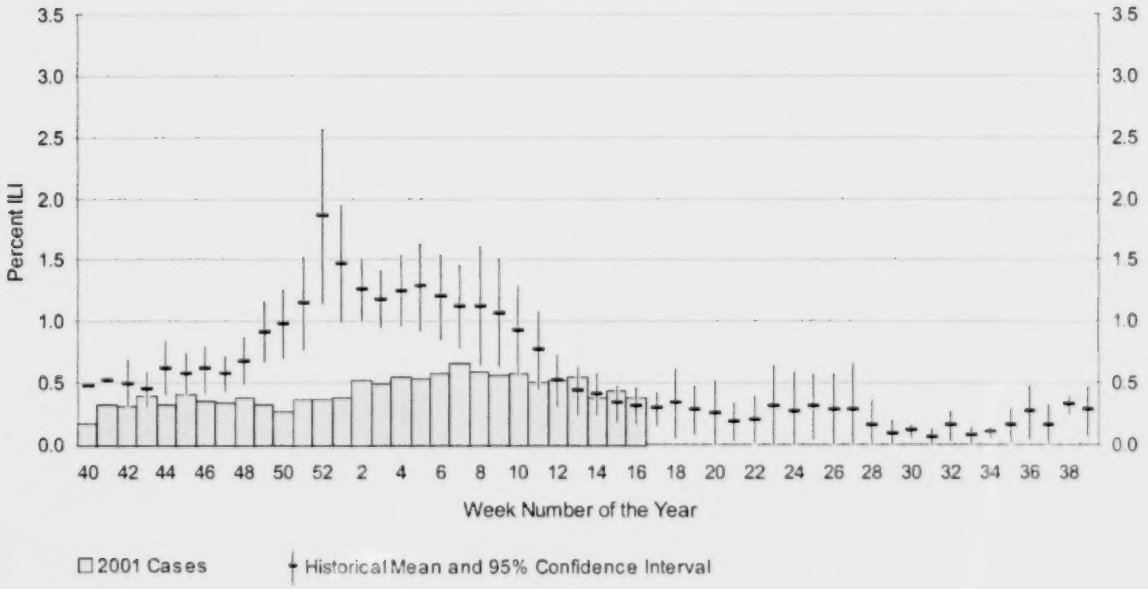
Influenza

Influenza activity in BC is best characterized on a seasonal basis between October and April using a combination of surveillance measures including sentinel physician reports, school and long term care facility outbreaks and laboratory confirmation.

A total of 48 sentinel physicians participated in influenza reporting during the 2001-2002 influenza season - a slight increase from the 40 physicians the previous season. The proportion of physician visits due to influenza-like illness (ILI) were well below the historical mean until mid-February, 2002 at which time the percentages were consistent with the historical mean (figure 1). There was no dramatic increase, peak and subsequent decrease in ILI activity as noted historically over the holiday season. Instead, ILI activity increased to 0.50% in January and remained consistent through week 2 to week 13 (range 0.47% - 0.64%).

figure 1

Percent of Physician Visits due to Influenza Like Illness (ILI) in BC 2001/2002 Season Compared to 1989/90-2000/01 Seasons



There were a total of 269 (17.7%) influenza isolates out of a total of 1520 specimens tested; 262 (97%) were influenza A and 7 (3%) were influenza B. Five of the seven B isolates were identified during week 13. One hundred and twenty-two (45%) of the 262 influenza isolates were identified during the month of March. The rate of positive influenza isolates peaked during week 13 at 39% but persisted up to week 15 with 30% of isolates reported positive for influenza.

Forty-seven isolates were sent the National Microbiology Laboratory for strain characterization; 42 (89%) were characterized as A/Panama/2007/99-like, 4 (9%) were characterized as B/Hong Kong/22/2001, and 1 (2%) was characterized as B/Sichuan/379/99-like. The 2001-2002 season's trivalent vaccine was composed of: A/New Caledonia/20/99-like virus, the recommended influenza A (H1N1) component, A/Panama/2007/99-like virus, the recommended influenza A (H3N2) component, and B/Sichuan/379/99-like, the recommended influenza B component of the 2001-2002 influenza vaccine.

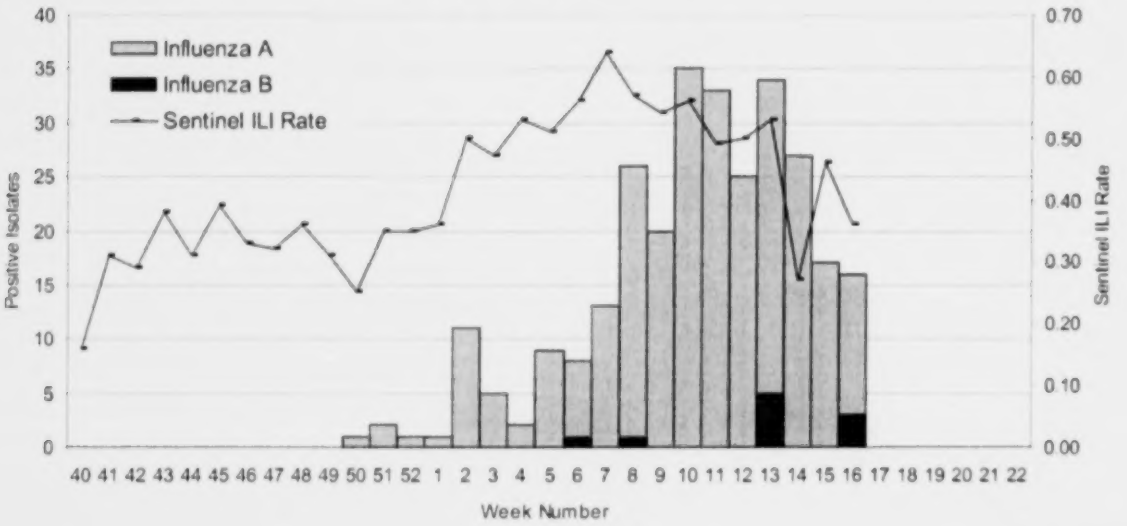
The B/Hong Kong/22/2001-like virus characterized during the 2001-2002 season belongs to the B/Victoria/02/87 lineage which was an epidemic strain during 1988-1989. The only isolates belonging to this lineage that have been seen in the past few years have been from China, Hong Kong, Singapore, Thailand and Japan. B/Hong Kong/22/01-like viruses were reported from Nova Scotia (1), Quebec (4), Ontario (81), Saskatchewan (2), Alberta (10), and BC (4). The B/Hong Kong/22/01-like viruses are antigenically different from the vaccine strains and the 2001-2002 vaccine was expected to provide limited cross-protection against these viruses.

A new strain of influenza A virus (H1N2) was isolated in Canada during the 2001-2002 season. Influenza A (H1N2) viruses have been identified in the past. Between December 1988 and March 1989, a number of influenza A (H1N2) viruses were identified in China, but the virus did not spread further. The new H1N2 strain appears to have resulted from the reassortment of the genes of the currently circulating influenza A (H1N1) and A(H3N2) subtypes. As the new strain is a combination of the two components present in the two A strains currently contained in the vaccine, this season's vaccine was expected to provide good protection against the A (H1N2) virus. The new influenza A (H1N2) strain was isolated from the provinces of Manitoba, Saskatchewan and Alberta. No isolates of the influenza A (H1N1) strain were identified in BC.

Compared to the 2000-2001 season, the number of ILI outbreaks reported to BCCDC was substantially higher despite lower community level activity compared to historic rates. Influenza A was isolated in 38 (90%) of the 42 LTCF/hospital outbreaks reported; one facility had both influenza A and parainfluenza isolated. All isolates from LTCF/hospital outbreaks that were sent for strain characterization were characterized as A/Panama/2007/99-like.

figure 2

Influenza Isolates and ILI rates, By Week, 2001/2002



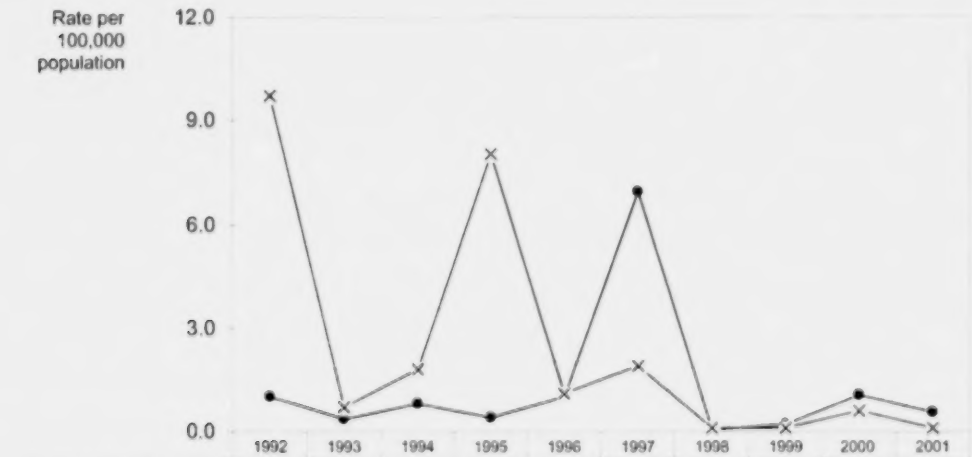
Measles

A total of 23 cases of measles were reported in 2001, including 4 sibling pairs. Seven (30%) were in children under 5 years, and 8 in children aged 10 to 14 years. Five cases were in adults aged over 20 years. Fourteen were male, and 9 female. Eighteen cases were serologically confirmed, and the rest were clinical cases epidemiologically linked to laboratory confirmed cases. Most laboratory confirmed cases were by IgM, with only 3 cases also confirmed by a rise in IgG titre. Collection of blood for acute and convalescent serology for IgG is now encouraged in Canada for diagnosis of all cases without a link to a confirmed measles case. This is because the reliability of IgM testing has declined due to the uncommon occurrence of measles.

Most (15 or 65%) cases had a history of no prior measles vaccination; of these, four were aged 1.0 years or less, and too young to have been vaccinated against measles. An additional 3 had unknown measles immunization status. The remaining 5 had a history of one prior dose of measles-containing vaccine, and a 6th was born prior to 1957 and had a history of measles disease as a child. No cases were reported among two-dose recipients.

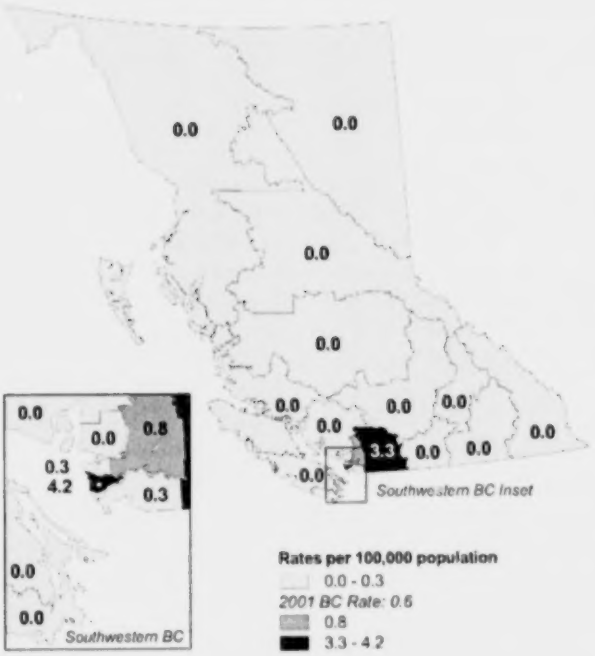
Seven (30%) cases had a history of measles exposure outside of Canada, with countries of travel Japan, Korea, New Zealand, Pakistan, Philippines, and the US. Only 1 case was hospitalized: a 3 year old with no prior history of measles vaccination. Most unimmunized cases had not been vaccinated due to philosophical or religious objections to vaccination; two siblings with measles were unvaccinated due to a remote history of egg allergy, which is no longer considered to be a contraindication to receipt of measles-containing vaccine. The largest outbreak in 2001 was in Fraser Valley and consisted of seven cases among young teens over a single generation, related to an initially unrecognized imported index case of measles returning to the region from an overseas Christmas-period holiday. Four cases were neither imported nor import-associated and appear to have acquired measles in BC. One of these resided in a refugee household and may have had opportunity for contact with an unrecognized imported case. Two secondary cases were associated with this case. One endemic case occurred in a young adult male without a known source of infection but temporally in keeping with a cluster of early autumn cases in the Vancouver/Richmond area.

Measles Rates by Year, 1992-2001



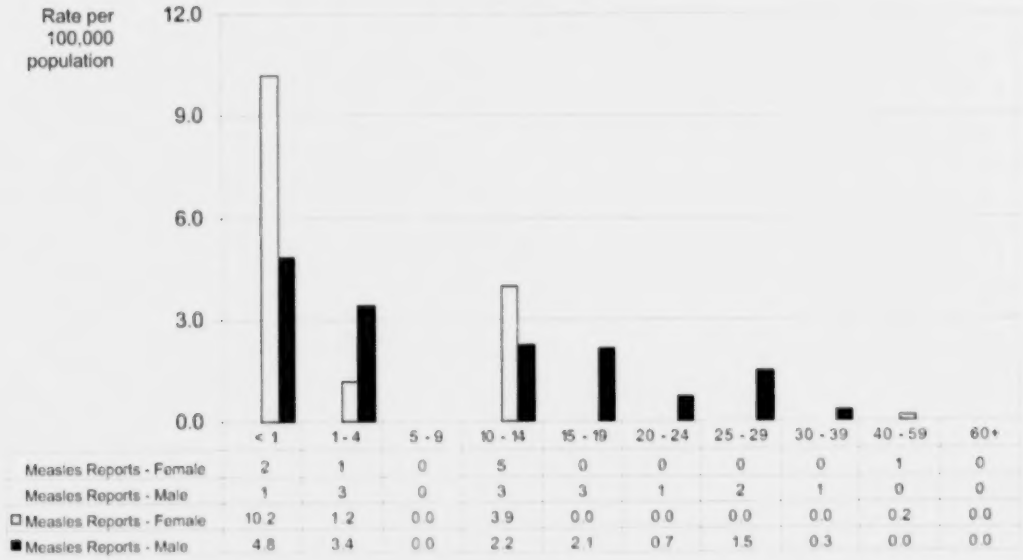
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Measles Reports	34	12	30	15	39	274	2	8	42	23
BC Measles Rate	1.0	0.3	0.8	0.4	1.0	6.9	0.1	0.2	1.0	0.6
Canadian Measles Rate	9.7	0.7	1.8	8.0	1.1	1.9	0.1	0.1	0.6	0.1

Measles Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	0	0.0
5	Thompson	0	0.0
6	Fraser Valley	8	3.3
7	South Fraser Valley	2	0.3
8	Simon Fraser	4	0.8
9	Coast Garibaldi	0	0.0
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	2	0.3
18	North Shore	0	0.0
19	Richmond	7	4.2
20	Capital	0	0.0

Measles Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Measles Reports - Female	2	1	0	5	0	0	0	0	1	0
Measles Reports - Male	1	3	0	3	3	1	2	1	0	0
□ Measles Reports - Female	10.2	1.2	0.0	3.9	0.0	0.0	0.0	0.0	0.2	0.0
■ Measles Reports - Male	4.8	3.4	0.0	2.2	2.1	0.7	1.5	0.3	0.0	0.0

Mumps

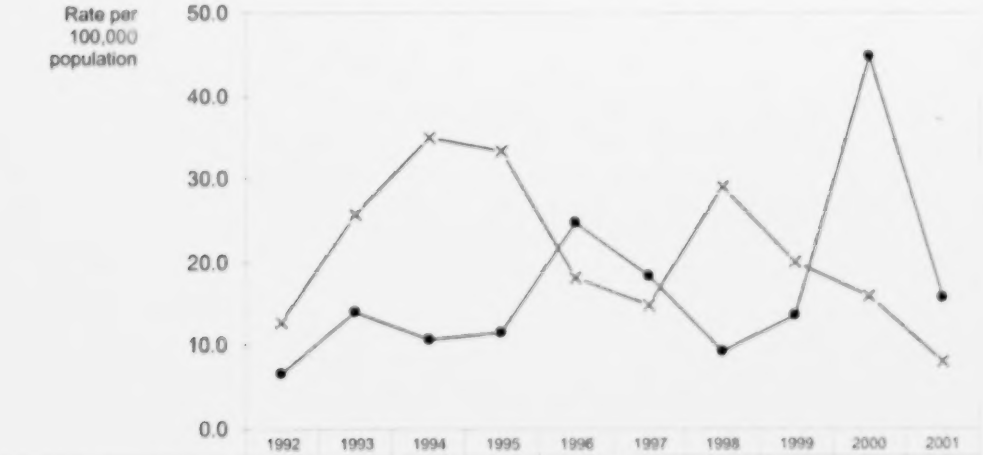
Twenty-five cases of mumps were reported in 2001 for a rate of 0.6 per 100,000, with somewhat higher rates reported in the 15 to 24 year age group. This disease is likely underreported as one-third of cases have no salivary gland swelling and mumps may not be considered in the differential diagnosis. However, rates in BC are in keeping with those observed elsewhere in Canada, and apart from the large outbreak in 1997 in the province, appear to have declined from the pre-1996 period; a two dose MMR vaccine schedule was introduced in BC in 1996 as part of measles elimination efforts.

Pertussis

Pertussis activity in general decreased during 2001 relative to 2000. The unique age profile observed during the outbreak in 2000, however, was preserved in 2001 (see 2000 British Columbia Annual Summary of Reportable Diseases). This is important because it suggests the shift in the age distribution of pertussis towards older age groups may be a lasting effect rather than an outbreak artifact.

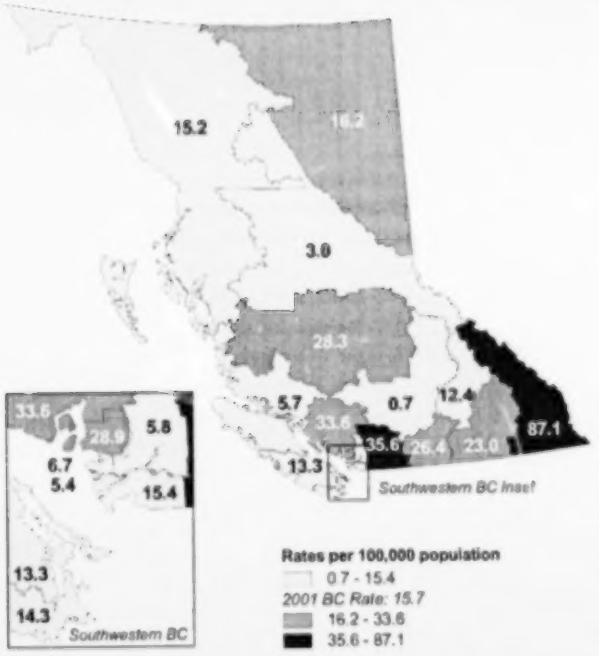
The incidence of pertussis was highest in 10 to 14 year old children (85 per 100,000) during 2000 and once more exceeded the rate observed in infants (79 per 100,000) or pre-school children 1 to 4 years of age (30 per 100,000). Ten year old children experienced the highest rates of pertussis during 2000 (112 per 100,000). As in 2000, 10 to 14 year old children comprised more than a third of all cases during 2001.

Pertussis Rates by Year, 1992-2001



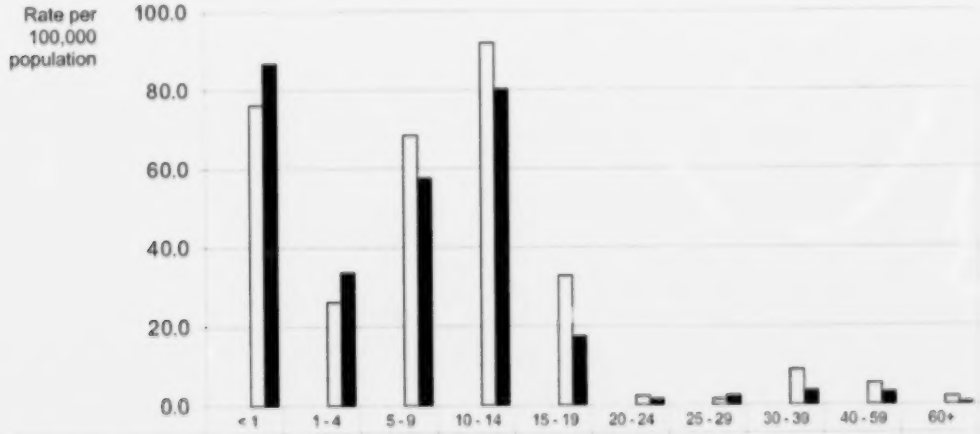
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Pertussis Reports	227	503	395	438	959	724	369	543	1812	643
BC Pertussis Rate	6.5	14.1	10.7	11.6	24.7	18.3	9.2	13.5	44.6	15.7
Canadian Pertussis Rate	12.7	25.8	35.0	33.4	18.2	14.8	29.1	20.0	15.8	8

Pertussis Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	73	87.1
2	West Kootenay - Boundary	19	23.0
3	North Okanagan	15	12.4
4	South Okanagan - Similkameen	63	26.4
5	Thompson	1	0.7
6	Fraser Valley	87	35.6
7	South Fraser Valley	89	15.4
8	Simon Fraser	30	5.8
9	Coast Garibaldi	27	33.6
10	Central Vancouver Island	33	13.3
11	Upper Island/Central Coast	7	5.7
12	Cariboo	22	28.3
13	North West	14	15.2
14	Peace Liard	11	16.2
15	Northern Interior	4	3.0
16	Vancouver	39	6.7
18	North Shore	52	28.9
19	Richmond	9	5.4
20	Capital	48	14.3

Pertussis Rates by Age Group and Sex, 2001

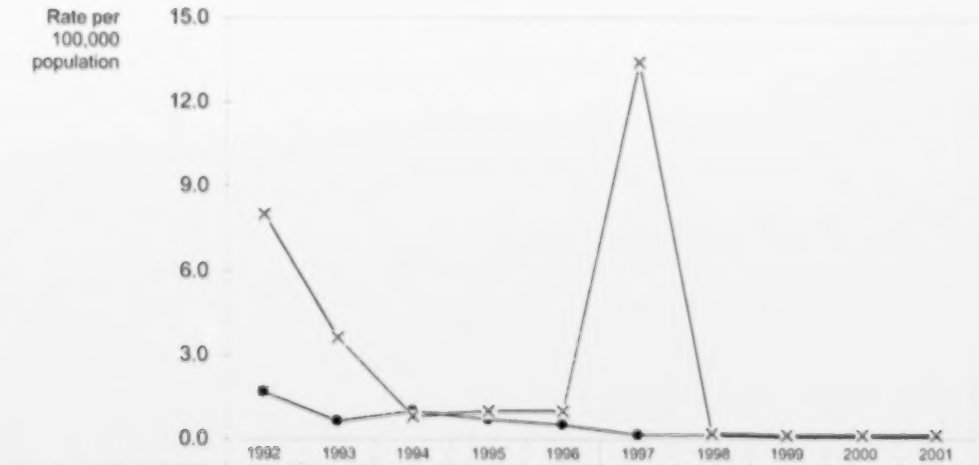


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Pertussis Reports - Female	15	22	63	117	43	3	2	29	31	6
Pertussis Reports - Male	18	30	74	107	24	2	3	11	19	2
Pertussis Reports - Unknown	0	0	2	0	0	0	0	0	0	0
□ Pertussis Rate - Female	76.3	26.0	68.2	91.9	32.7	2.2	1.5	8.9	5.2	1.6
■ Pertussis Rate - Male	86.6	33.7	57.4	79.8	17.2	1.5	2.2	3.3	3.2	0.6

Rubella

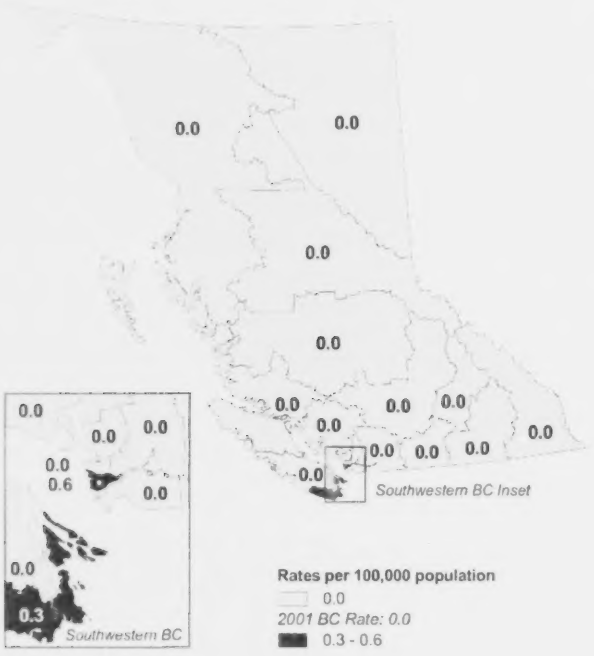
Only two cases of rubella were reported in BC in 2001, the same as in 2000. Rates appear to have declined in relation to the introduction of the two-dose MMR vaccine program in 1996. No cases were reported among women of child-bearing age.

Rubella Rates by Year, 1992-2001



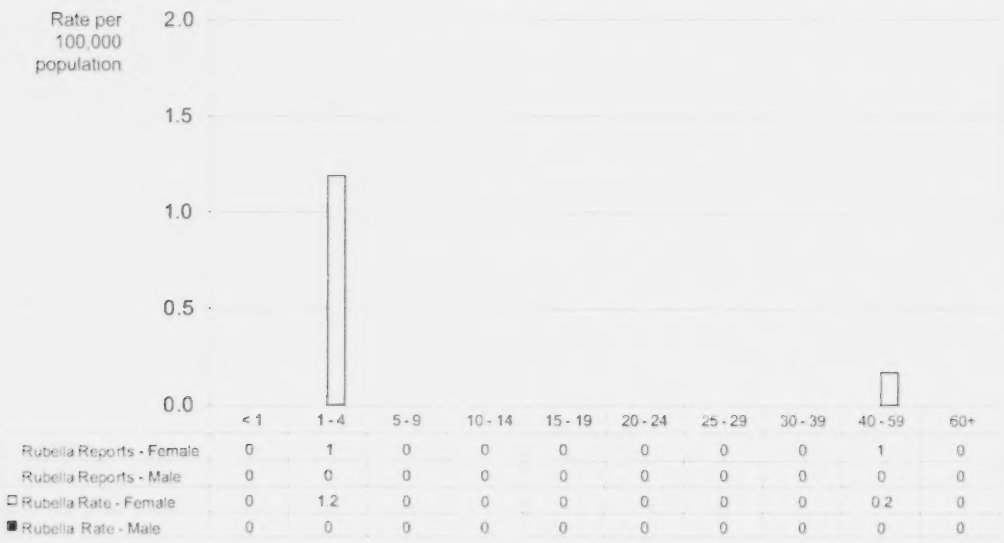
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Rubella Reports	58	22	36	26	19	5	4	3	2	2
BC Rubella Rate	1.7	0.6	1.0	0.7	0.5	0.1	0.1	0.1	0.0	0.0
Canadian Rubella Rate	8.0	3.6	0.8	1.0	1.0	13.4	0.2	0.1	0.1	0.1

Rubella Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	0	0.0
5	Thompson	0	0.0
6	Fraser Valley	0	0.0
7	South Fraser Valley	0	0.0
8	Simon Fraser	0	0.0
9	Coast Garibaldi	0	0.0
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	0	0.0
18	North Shore	0	0.0
19	Richmond	1	0.6
20	Capital	1	0.3

Rubella Rates by Age Group and Sex, 2001



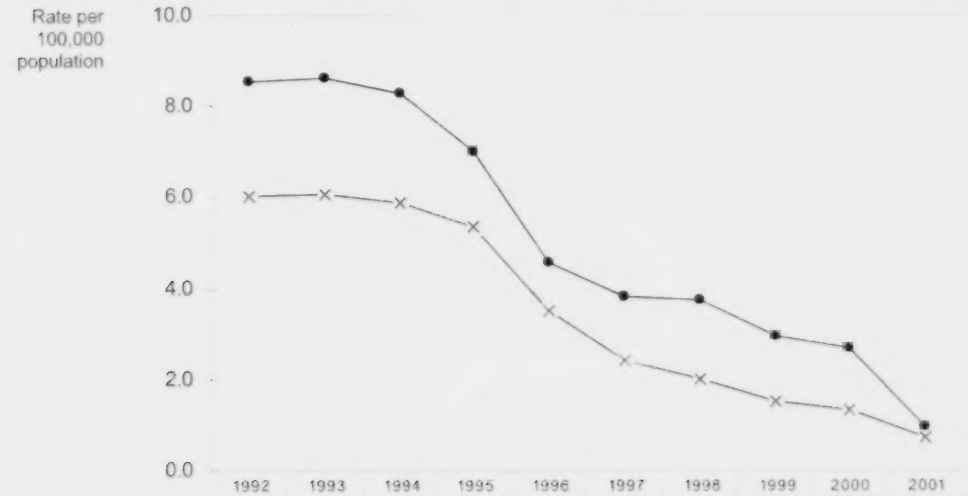
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Rubella Reports - Female	0	1	0	0	0	0	0	0	1	0
Rubella Reports - Male	0	0	0	0	0	0	0	0	0	0
Rubella Rate - Female	0	1.2	0	0	0	0	0	0	0.2	0
Rubella Rate - Male	0	0	0	0	0	0	0	0	0	0

Sexually Transmitted and Bloodborne Pathogens

AIDS

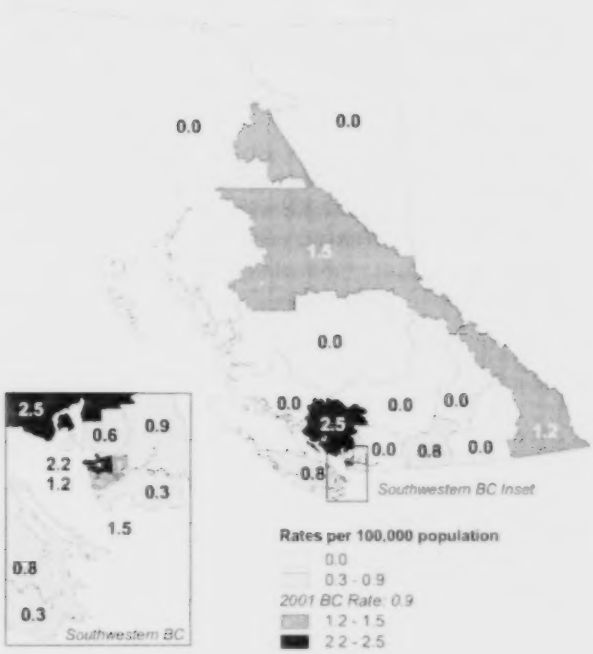
The BC rate of 0.9 per 100,000 population of newly reported AIDS continues to decline. The very low total for 2001 (38) reflects some degree of reporting delay. The largest number of cases continues to be in Vancouver and the highest rate per 100,000 population remains in Coast Garibaldi. Age and gender distribution remains similar to previous years.

AIDS Rates by Year, 1992-2001



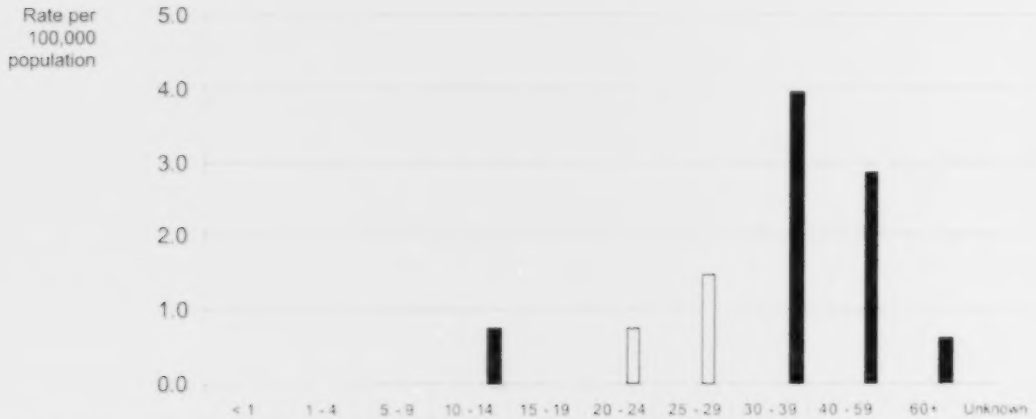
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
AIDS Reports	296	307	305	264	177	151	149	119	109	38
BC AIDS Rate	8.5	8.6	8.3	7.0	4.6	3.8	3.7	2.9	2.7	0.9
Canadian AIDS Rate	6.0	6.1	5.9	5.3	3.5	2.4	2.0	1.5	1.3	0.7

AIDS Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	1	1.2
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	2	0.8
5	Thompson	0	0.0
6	Fraser Valley	0	0.0
7	South Fraser Valley	2	0.3
8	Simon Fraser	3	0.9
9	Coast Garibaldi	2	2.5
10	Central Vancouver Island	2	0.8
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	2	1.5
16	Vancouver	13	2.2
17	Burnaby	3	1.5
18	North Shore	1	0.6
19	Richmond	2	1.2
20	Capital	1	0.3

AIDS Rates by Age Group and Sex, 2001

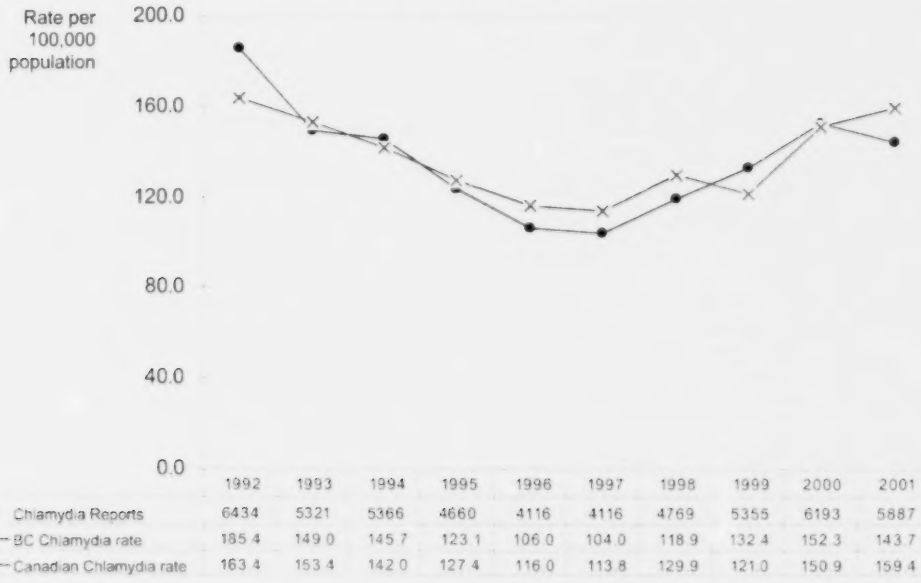


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
AIDS Reports - Female	0	0	0	0	0	1	2	0	0	0	0
AIDS Reports - Male	0	0	0	1	0	0	0	13	17	2	0
AIDS Reports - Unknown	0	0	0	0	0	0	0	0	0	0	2
□ AIDS Rate - Female	0.0	0.0	0.0	0.0	0.0	0.7	1.5	0.0	0.0	0.0	
■ AIDS Rate - Male	0.0	0.0	0.0	0.7	0.0	0.0	0.0	4.0	2.9	0.6	

Genital Chlamydia

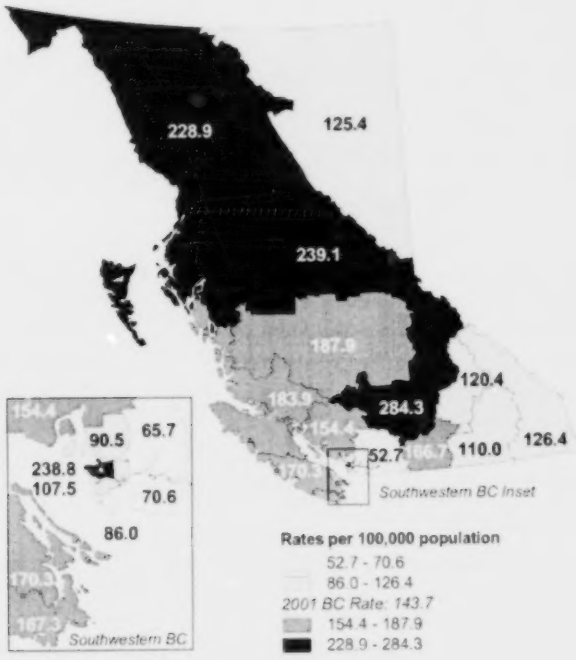
In 2001 the rate of reported genital chlamydia infection was 143.7 per 100,000 population. This is a 5.6% decrease from the 2000 rate of 152.3 per 100,000 population but is still an 8.5% increase over the 1999 rate of 132.4 per 100,000 population. The health region with the highest rate per 100,000 population is Thompson with a rate of 284.3 which is a 35% increase over last year. East Kootenay had the largest rate increase of 71% going from 73.9 in 2000 to 126.4 in 2001. Other regions with significant increases include Cariboo with a 39.5% rate increase, North Shore with a 32% increase in rate and Richmond with a 39% rate increase. Nine health regions had rate decreases in 2001. These included Fraser Valley with a 25% decrease, Simon Fraser with a 32% decrease, Northern Interior with a 24% decrease and Vancouver with 16% decrease. The majority of female cases continue to occur in 15 to 24 year old age group and the majority of male cases are in the 20 to 29 year old group.

Genital Chlamydia Rates by Year, 1992-2001



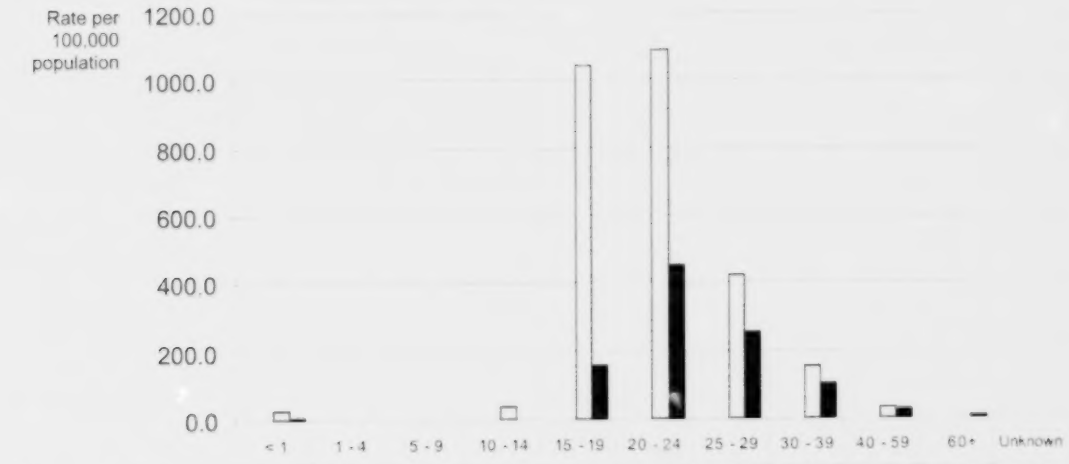
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Chlamydia Reports	6434	5321	5366	4660	4116	4116	4769	5355	6193	5887
BC Chlamydia rate	185.4	149.0	145.7	123.1	106.0	104.0	118.9	132.4	152.3	143.7
Canadian Chlamydia rate	163.4	153.4	142.0	127.4	116.0	113.8	129.9	121.0	150.9	159.4

Genital Chlamydia Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	106	126.4
2	West Kootenay - Boundary	91	110.0
3	North Okanagan	146	120.4
4	South Okanagan - Similkameen	398	166.7
5	Thompson	393	284.3
6	Fraser Valley	129	52.7
7	South Fraser Valley	409	70.6
8	Simon Fraser	213	65.7
9	Coast Garibaldi	124	154.4
10	Central Vancouver Island	421	170.3
11	Upper Island/Central Coast	225	183.9
12	Cariboo	146	187.9
13	North West	211	228.9
14	Peace Liard	85	125.4
15	Northern Interior	322	239.1
16	Vancouver	1398	238.8
17	Burnaby	167	86.0
18	North Shore	163	90.5
19	Richmond	179	107.5
20	Capital	561	167.3

Genital Chlamydia Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Chlamydia Reports - Female	5	1	0	43	1369	1464	571	498	181	4	34
Chlamydia Reports - Male	1	0	0	2	218	627	345	333	157	10	24
□ Chlamydia Rate - Female	25.4	1.2	0.0	33.8	1041.3	1088.4	419.8	152.3	30.4	1.0	
■ Chlamydia Rate - Male	4.8	0.0	0.0	1.5	156.2	454.8	254.3	101.3	26.4	3.1	

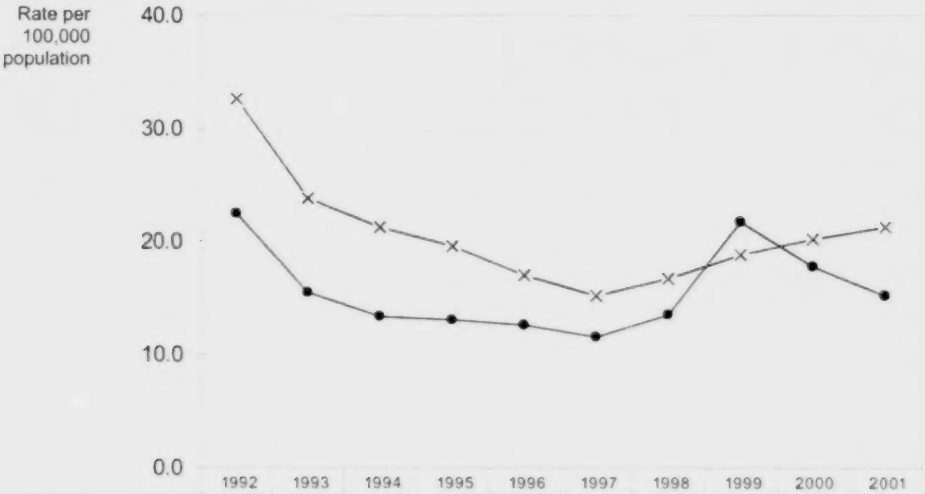
Gonorrhea

In 2001 the rate of reported gonorrhea infection was 15.1 per 100,000 population. This is a 15% decrease in rate from the 2000 rate of 17.8 per 100,000 population. This is still an 11.9% increase over the 1998 rate of 13.5.

Four health regions more than doubled their rate per 100,000 population. These were Capital Health, Richmond, Peace Liard and Northern Interior. All other regions had declines in numbers of cases. Vancouver continues to have the highest rate of infection at 5 times that of any other area.

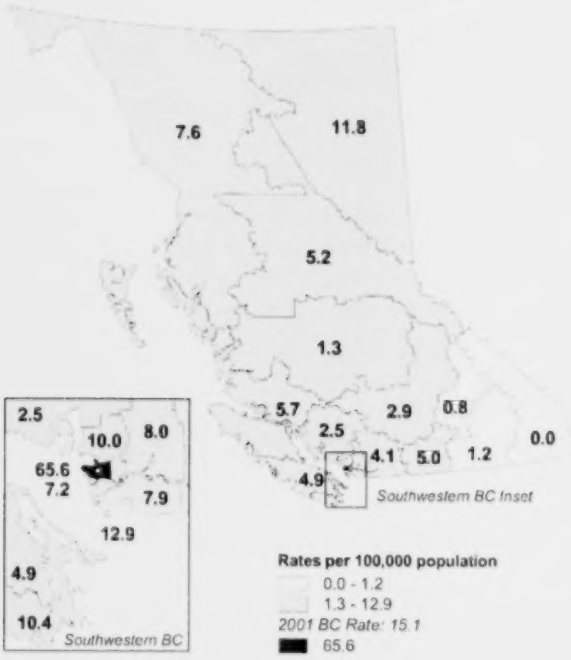
The age distribution continues in the typical pattern of highest rates in females in the 15 to 24 age range and the highest rates in males in the 25 to 39 age range.

Gonorrhea Rates by Year, 1992-2001



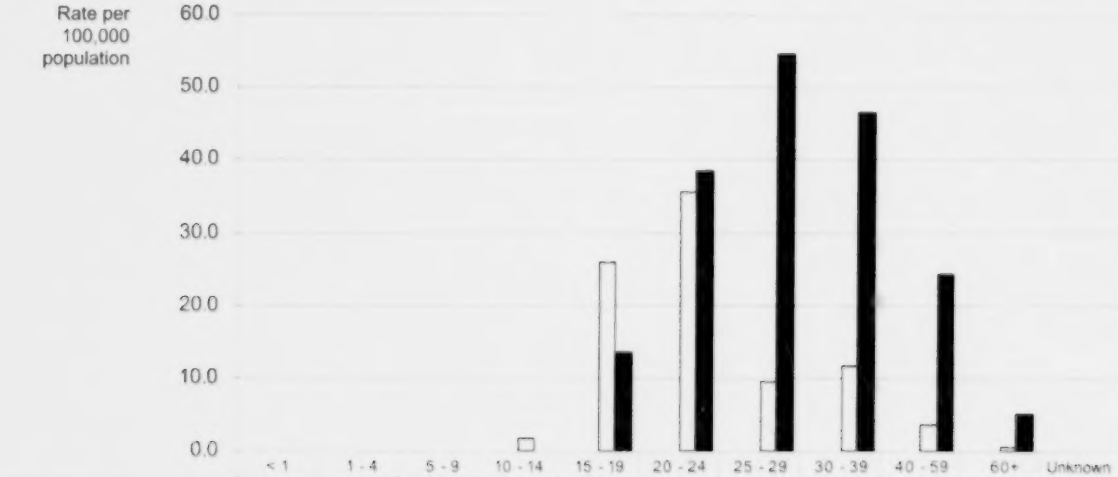
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Gonorrhea Reports	777	550	489	492	488	458	541	878	724	618
BC Gonorrhea Rate	22.4	15.4	13.3	13.0	12.6	11.6	13.5	21.7	17.8	15.1
Canadian Gonorrhea Rate	32.6	23.8	21.2	19.5	16.9	15.1	16.7	18.8	20.2	21.2

Gonorrhea Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	1	0.8
4	South Okanagan - Similkameen	12	5.0
5	Thompson	4	2.9
6	Fraser Valley	10	4.1
7	South Fraser Valley	46	7.9
8	Simon Fraser	26	8.0
9	Coast Garibaldi	2	2.5
10	Central Vancouver Island	12	4.9
11	Upper Island/Central Coast	7	5.7
12	Cariboo	1	1.3
13	North West	7	7.6
14	Peace Liard	8	11.8
15	Northern Interior	7	5.2
16	Vancouver	384	65.6
17	Burnaby	25	12.9
18	North Shore	18	10.0
19	Richmond	12	7.2
20	Capital	35	10.4

Gonorrhea Rates by Age Group and Sex, 2001

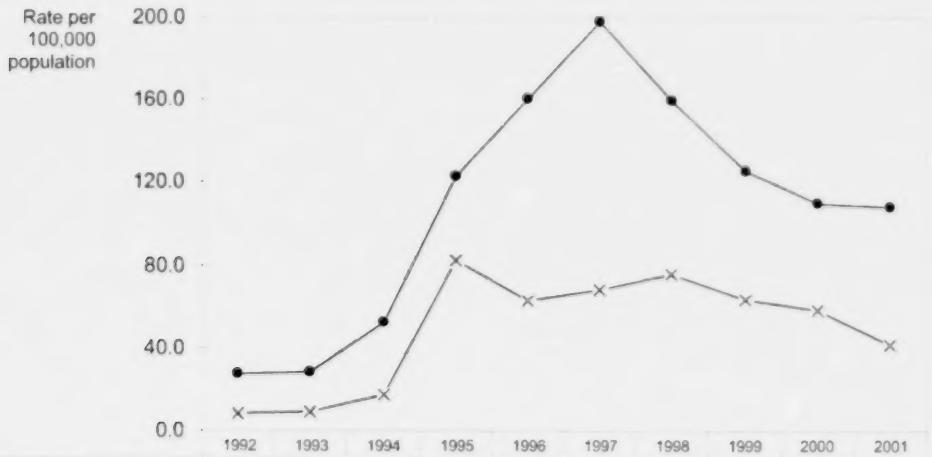


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Gonorrhea Reports - Female	0	0	0	2	34	48	13	38	21	2	0
Gonorrhea Reports - Male	0	0	0	0	19	53	74	153	144	16	1
□ Gonorrhea Rate - Female	0.0	0.0	0.0	1.6	25.9	35.7	9.6	11.6	3.5	0.5	
■ Gonorrhea Rate - Male	0.0	0.0	0.0	0.0	13.6	38.4	54.6	46.5	24.2	4.9	

Hepatitis C

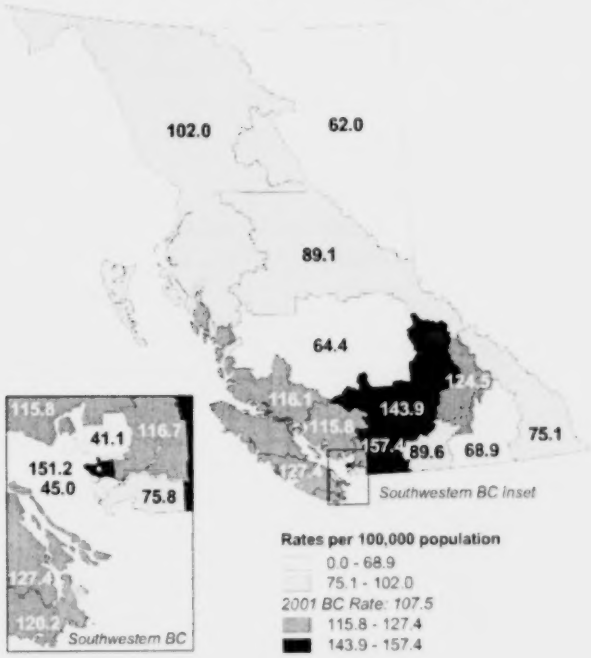
The annual number and rate of reported hepatitis C in 2001 continued a declining trend observed since 1997. Over this 4 year period, the rate of reported hepatitis C decreased by 44%, although in 2001, the crude rate in British Columbia (108 per 100,000) remained 2.6 times higher than the Canadian rate (42 per 100,000). The trend in the year-to-year rate of reported hepatitis C in British Columbia, peaking in 1997, is likely related to testing and reporting. Six cases reported in infants under 1 year of age likely reflect mother-to-child transmission that occurred at the time of birth. Since most acute hepatitis C has an asymptomatic or non-specific clinical presentation, and the natural history of hepatitis C disease can extend over many decades, most reported cases represent chronic infection. For similar reasons, although almost 43,000 cases of hepatitis C have been reported in British Columbia since 1992, corresponding to a rate of approximately 1% of the population, this underestimates the true prevalence of hepatitis C in the province. Starting in 2001, all persons with chronic hepatitis C are eligible for publicly funded polysaccharide pneumococcal vaccine, in addition to hepatitis A and hepatitis B vaccines.

Hepatitis C Rates by Year, 1992-2001



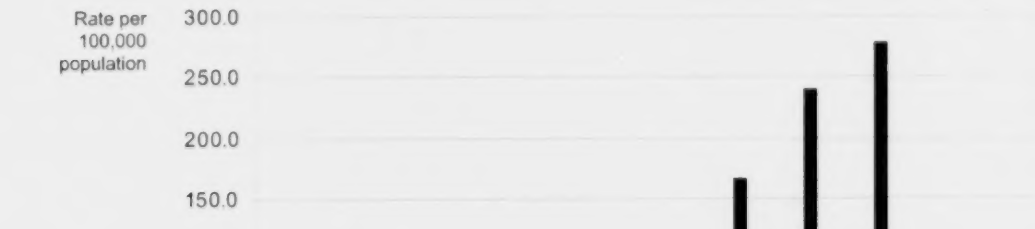
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Hepatitis C Reports	952	996	1913	4661	6218	7827	6367	5059	4448	4406
BC Hepatitis C Rate	27.4	27.9	52.0	123.2	160.2	197.7	159.3	125.8	109.5	107.5
Canadian Hepatitis C Rate	8.7	9.8	18.0	82.8	62.6	68.2	75.2	63.6	58.2	41.7

Hepatitis C Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	63	75.1
2	West Kootenay - Boundary	57	68.9
3	North Okanagan	151	124.5
4	South Okanagan - Similkameen	214	89.6
5	Thompson	199	143.9
6	Fraser Valley	385	157.4
7	South Fraser Valley	439	75.8
8	Simon Fraser	605	116.7
9	Coast Garibaldi	93	115.8
10	Central Vancouver Island	315	127.4
11	Upper Island/Central Coast	142	116.1
12	Cariboo	50	64.4
13	North West	94	102.0
14	Peace Liard	42	62.0
15	Northern Interior	120	89.1
16	Vancouver	885	151.2
18	North Shore	74	41.1
19	Richmond	75	45.0
20	Capital	403	120.2

Hepatitis C Rates by Age Group and Sex, 2001



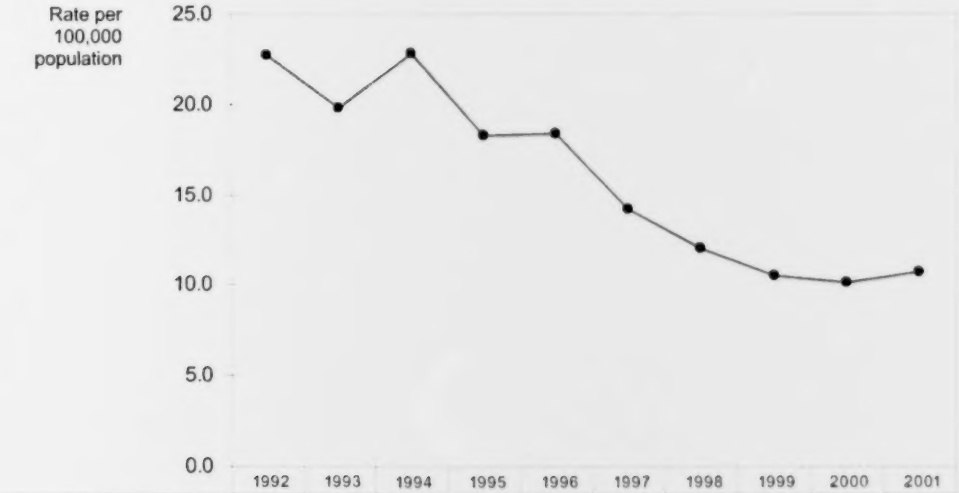
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Hepatitis C Reports - Female	4	1	2	2	36	97	143	388	643	126	2
Hepatitis C Reports - Male	2	2	3	4	25	114	225	786	1649	146	1
Hepatitis C Reports - Unknown	0	0	0	0	0	0	0	2	2	1	0
□ Hepatitis C Rate - Female	20.3	1.2	1.6	1.6	27.4	72.1	105.1	118.7	107.9	32.6	
■ Hepatitis C Rate - Male	9.6	2.2	2.3	3.0	17.9	82.7	165.9	239.0	277.5	45.2	

HIV

For the first time since 1994 the rate per 100,000 population of newly positive HIV tests increased from 10.2 in 2000 to 10.7 in 2001. This increase is due to the continued increase in HIV in Gay men and a rebound in HIV in heterosexuals to a number closer to the 1999 number (1999-88, 2000-57, and 2001-91).

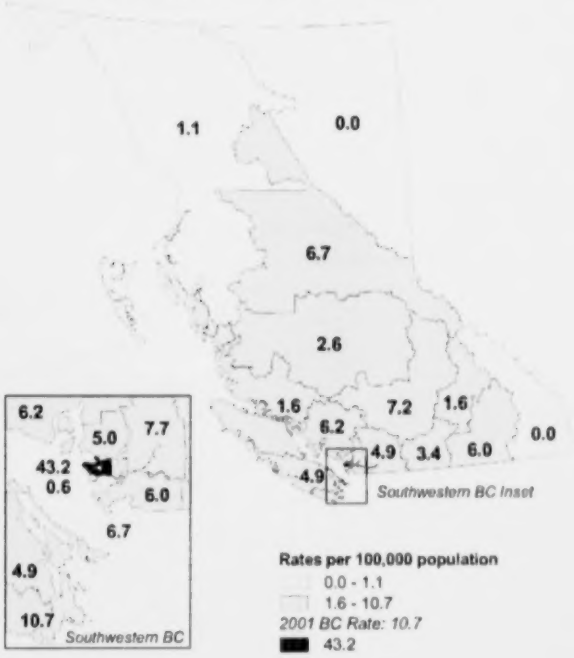
The geographic region with the highest rate continues to be the City of Vancouver (43.2 per 100,000) which also had a slight increase from 42.0 in 2000. Males aged 25 to 39 had the highest male rates and females aged 20 to 29 had the highest female rates.

HIV Rates by Year, 1992-2001



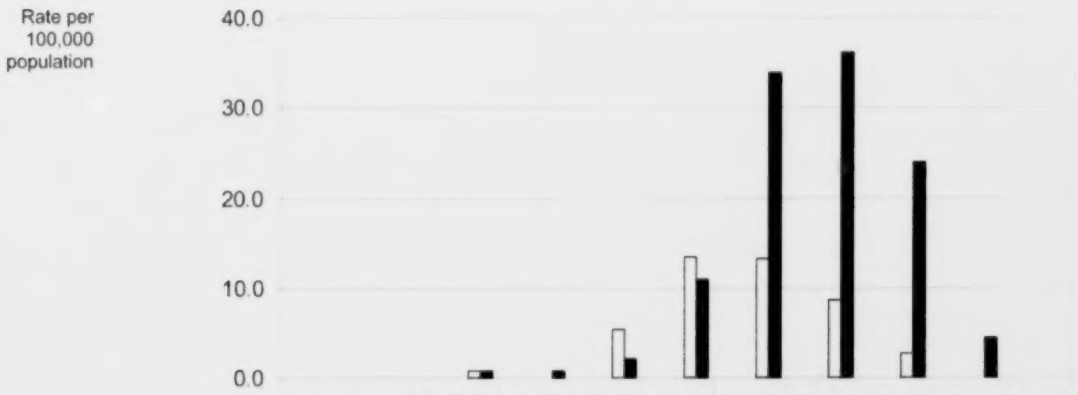
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
HIV Newly Positive Tests	788	706	840	690	715	561	482	427	413	440
BC HIV Rate	22.7	19.8	22.8	18.2	18.4	14.2	12.0	10.6	10.2	10.7

HIV Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	5	6.0
3	North Okanagan	2	1.6
4	South Okanagan - Similkameen	8	3.4
5	Thompson	10	7.2
6	Fraser Valley	12	4.9
7	South Fraser Valley	35	6.0
8	Simon Fraser	25	7.7
9	Coast Garibaldi	5	6.2
10	Central Vancouver Island	12	4.9
11	Upper Island/Central Coast	2	1.6
12	Cariboo	2	2.6
13	North West	1	1.1
14	Peace Liard	0	0.0
15	Northern Interior	9	6.7
16	Vancouver	253	43.2
17	Burnaby	13	6.7
18	North Shore	9	5.0
19	Richmond	1	0.6
20	Capital	36	10.7

HIV Rates by Age Group and Sex, 2001

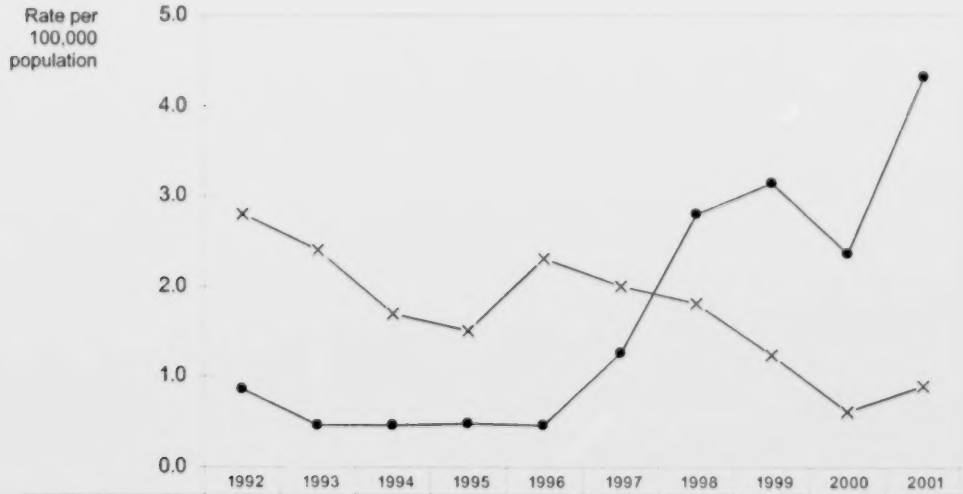


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
HIV Newly Positive Tests - Female	0	0	1	0	7	18	18	28	16	0	0
HIV Newly Positive Tests - Male	0	0	1	1	3	15	46	119	142	14	2
HIV Newly Positive Tests - Unknown	0	0	0	0	0	1	1	3	3	0	1
□ HIV Rate - Female	0.0	0.0	0.8	0.0	5.3	13.4	13.2	8.6	2.7	0.0	
■ HIV Rate - Male	0.0	0.0	0.8	0.7	2.1	10.9	33.9	36.2	23.9	4.3	

Infectious Syphilis

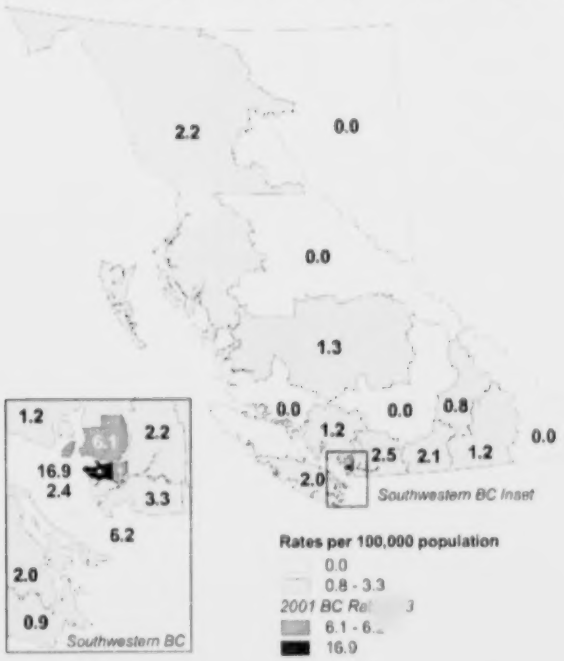
The outbreak of infectious syphilis has continued through 2001. The rate per 100,000 population increased from 2.4 to 4.3 and the numbers of cases increased from 96 cases to 177 cases. The BC provincial rate since 1997 has been significantly higher than the Canadian rate. Vancouver has the highest rate with 16.9 which is an increase over the rate of 11.3 of 2000. Syphilis in Vancouver is concentrated in the Downtown Eastside. Burnaby and the North Shore are the other two regions with rates higher than the provincial average at 6.2 and 6.1 respectively. In 2001 the rate of syphilis in males aged 20 to 24 increased from 1.5 to 8.0 and the rate in females aged 25 to 29 increased from 1.5 to 14.7. This is a slight shift in both genders to lower aged groups.

Infectious Syphilis Rates by Year, 1992-2001



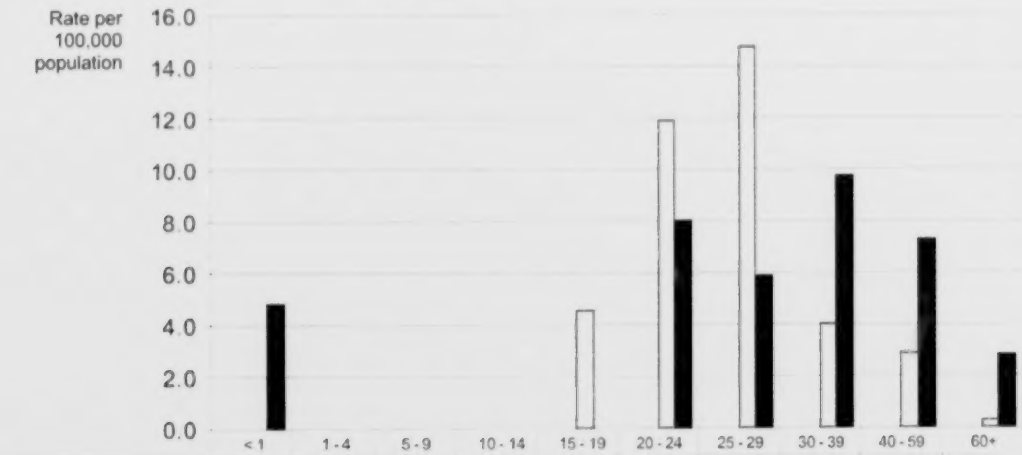
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Syphilis Reports	30	16	17	18	18	50	112	127	96	177
—●— BC Syphilis Rate	0.9	0.4	0.5	0.5	0.5	1.3	2.8	3.1	2.4	4.3
—×— Canadian Syphilis Rate	2.8	2.4	1.7	1.5	2.3	2.0	1.8	1.2	0.6	0.9

Infectious Syphilis Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	1	0.8
4	South Okanagan - Similkameen	5	2.1
5	Thompson	0	0.0
6	Fraser Valley	6	2.5
7	South Fraser Valley	19	3.3
8	Simon Fraser	7	2.2
9	Coast Garibaldi	1	1.2
10	Central Vancouver Island	5	2.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	1	1.3
13	North West	2	2.2
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	99	16.9
17	Burnaby	12	6.2
18	North Shore	11	6.1
19	Richmond	4	2.4
20	Capital	3	0.9

Infectious Syphilis Rates by Age Group and Sex, 2001



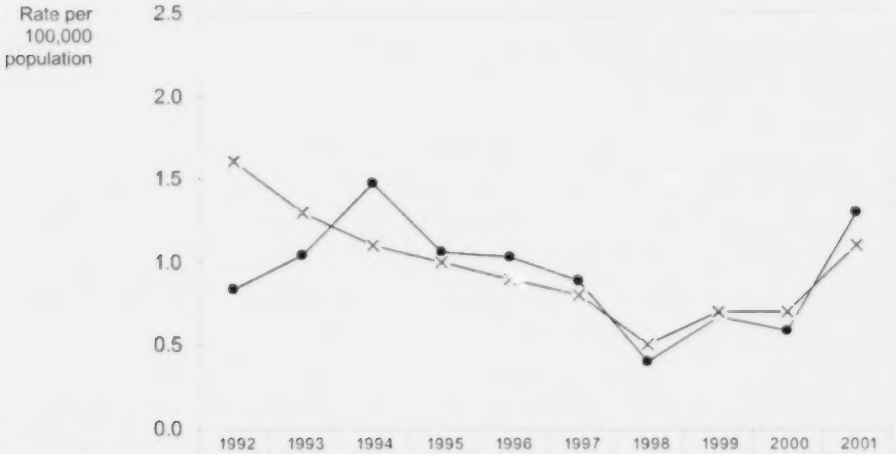
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Syphilis Reports - Female	0	0	0	0	6	16	20	13	17	1
Syphilis Reports - Male	1	0	0	0	0	11	8	32	43	9
□ Syphilis Rate - Female	0.0	0.0	0.0	0.0	4.6	11.9	14.7	4.0	2.9	0.3
■ Syphilis Rate - Male	4.8	0.0	0.0	0.0	0.0	8.0	5.9	9.7	7.2	2.8

Diseases Preventable by Direct Contact and Respiratory Routes

Meningococcal Disease (invasive)

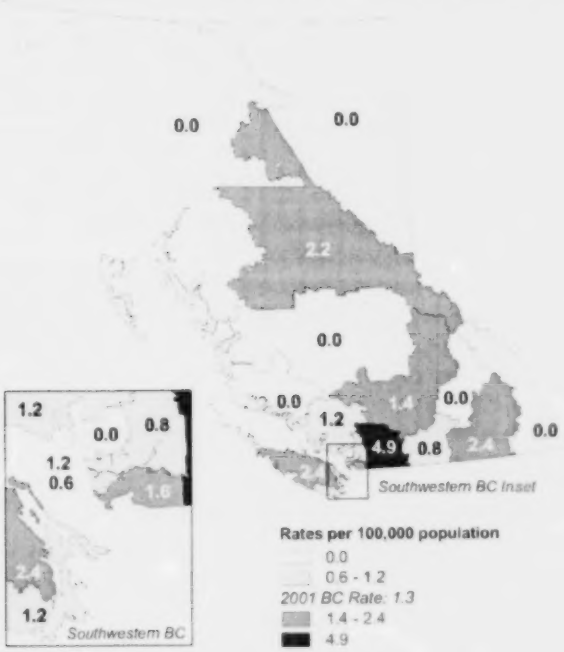
Fifty-three cases of invasive meningococcal disease (IMD) were reported in 2001, representing a crude reported incidence of 1.3 per 100,000. The number and rate were more than twice that reported in 2000 and mirror a Canadian trend of rising IMD since 1998. Twenty-eight of 53 cases (53%) were serogroup C, of which 14 cases (50%) occurred in the age group 15 to 29 years of age. Seven cases and 2 deaths also occurred in this same age group during an outbreak of serogroup C IMD in the Abbotsford area in 2001. The outbreak was successfully controlled by a immunization campaign targeting Abbotsford area teenagers and young adults, using both polysaccharide and conjugate meningococcal C vaccines. Implementing a universal infant immunization program using conjugate meningococcal C vaccine has the potential over time, to eliminate serogroup C IMD in children and prevent community serogroup C outbreaks that primarily affect children, youth, and young adults.

Meningococcal Disease (invasive) Rates by Year, 1992-2001



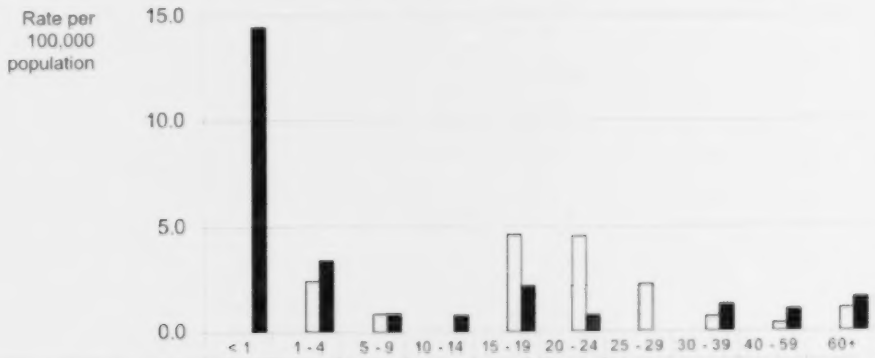
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Meningococcal Reports	29	37	54	40	40	35	16	27	24	53
BC Meningococcal Rate	0.8	1.0	1.5	1.1	1.0	0.9	0.4	0.7	0.6	1.3
Canadian Meningococcal Rate	1.6	1.3	1.1	1.0	0.9	0.8	0.5	0.7	0.7	1.1

Meningococcal Disease (invasive) Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	2	2.4
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	2	0.8
5	Thompson	2	1.4
6	Fraser Valley	12	4.9
7	South Fraser Valley	9	1.6
8	Simon Fraser	4	0.8
9	Coast Garibaldi	1	1.2
10	Central Vancouver Island	6	2.4
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	3	2.2
16	Vancouver	7	1.2
18	North Shore	0	0.0
19	Richmond	1	0.6
20	Capital	4	1.2

Meningococcal Disease (invasive) Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Meningococcal Disease (Invasive) Reports - Female	0	2	1	0	6	6	3	2	2	4
Meningococcal Disease (Invasive) Reports - Male	3	3	1	1	3	1	0	4	6	5
□ Meningococcal Disease (Invasive) Rate - Female	0.0	2.4	0.8	0.0	4.6	4.5	2.2	0.6	0.3	1.0
■ Meningococcal Disease (Invasive) Rate - Male	14.4	3.4	0.8	0.7	2.1	0.7	0.0	1.2	1.0	1.5

Pneumococcal Disease (invasive)

In 2001, British Columbia reported 185 cases of invasive pneumococcal disease (IPD), for a rate of 4.5 per 100,000 population. This is double the rate of 2.3 per 100,000 population seen in 2000, when 93 cases were reported. In 2000, the case definition was broadened, as it had previously been limited to pneumococcal meningitis. It is possible that some of the increase in reporting in 2001 is due to more complete and consistent reporting of the other forms of invasive pneumococcal disease.

BC's rate of IPD was similar to the national rate of 4.3 per 100,000 population in 2001. The preponderance of IPD continues to be seen in infants and children less than 5 years of age. In the less than one year of age group, males had twice the incidence of disease than did females. The rate of IPD for males less that one year of age was 38.5 per 100,000, while that for females in this age group was 20.3 per100, 000. The incidence of IPD in the one to four years of age group is similar for both males and females, with 16 and 18 cases reported respectively.

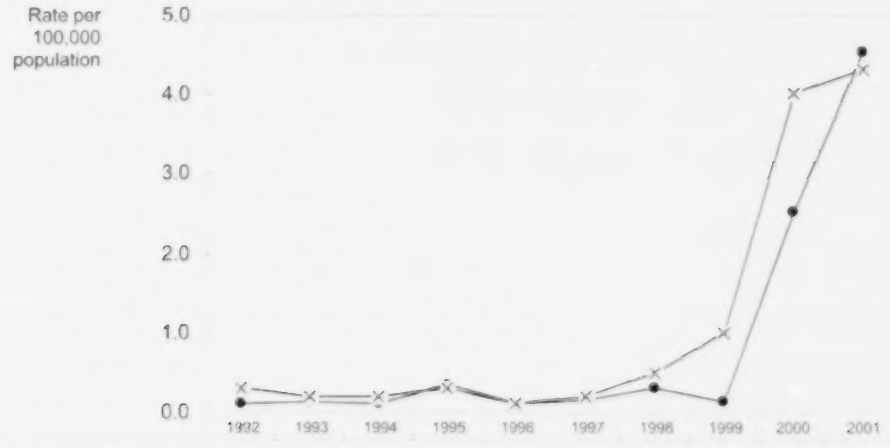
The age group of 60 years and over had the next highest rate of IPD, reporting rates per 100,000 of 6.2 for females, and 8.0 for males.

Health Regions reporting the highest rates of IPD were Northern Interior (20.1/100,000), Thompson (13.7/100,000), and Capital (9.8/100,000). These Health Regions also had the highest rates in 2000.

In 2001, the pneumococcal immunization program using the 23-valent polysaccharide vaccine was expanded to include all persons 2 to 64 years of age who are at high risk of serious invasive pneumococcal disease. Funding has been requested from the BC Ministry of Health to provide the newly licensed pneumococcal conjugate vaccine as part of the routine infant immunization program at 2, 4, 6, and 18 months of age.

Over the next year, public health priorities for the prevention of invasive pneumococcal disease are to achieve a higher level of pneumococcal immunization coverage in all groups for which the vaccine is publicly funded, and to acquire the funding to implement an infant pneumococcal immunization program.

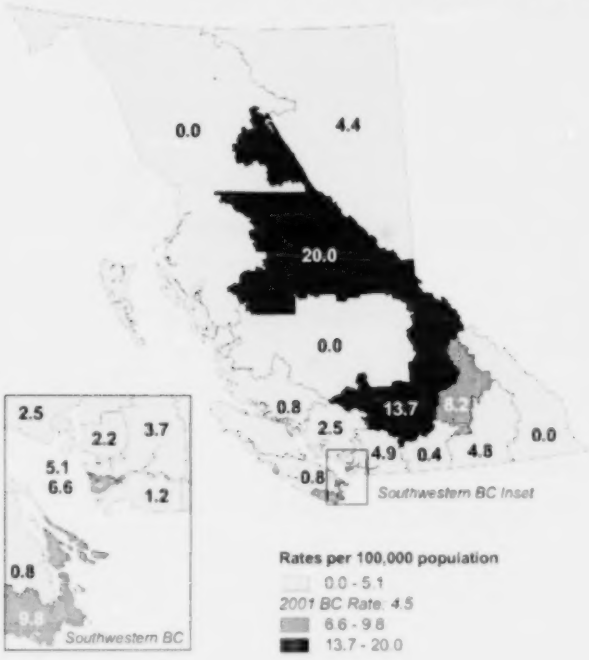
Pneumococcal Disease (invasive) Rates by Year, 1992-2001



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC invasive Pneumococcal Reports	4	5	4	13	4	6	12	5	102	185
BC Pneumococcal (Invasive) Rate	0.1	0.1	0.1	0.3	0.1	0.2	0.3	0.1	2.5	4.5
Canadian Pneumococcal (Invasive) Rate	0.3	0.2	0.2	0.3	0.1	0.2	0.5	1.0	4.0	4.3

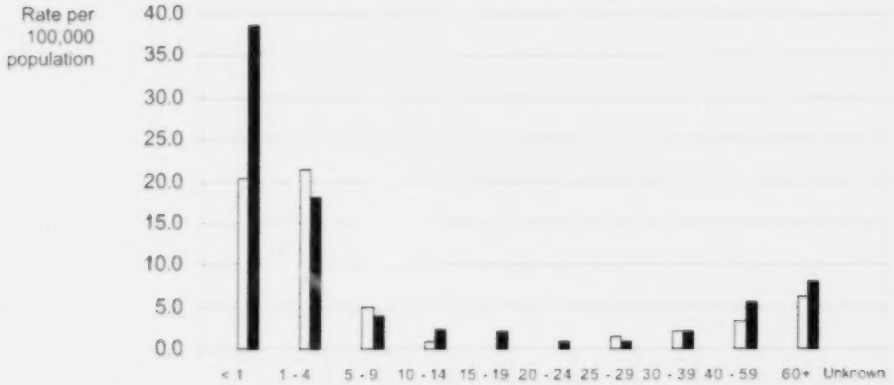
* Data for invasive pneumococcal disease (IPD) 1992-1999 had previously been limited to pneumococcal meningitis due to a change in the case definition.

Pneumococcal Disease (invasive) Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	4	4.8
3	North Okanagan	10	8.2
4	South Okanagan - Similkameen	1	0.4
5	Thompson	19	13.7
6	Fraser Valley	12	4.9
7	South Fraser Valley	7	1.2
8	Simon Fraser	19	3.7
9	Coast Garibaldi	2	2.5
10	Central Vancouver Island	2	0.8
11	Upper Island/Central Coast	1	0.8
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	3	4.4
15	Northern Interior	27	20.0
16	Vancouver	30	5.1
18	North Shore	4	2.2
19	Richmond	11	6.6
20	Capital	33	9.8

Pneumococcal Disease (invasive) Rates by Age Group and Sex, 2001

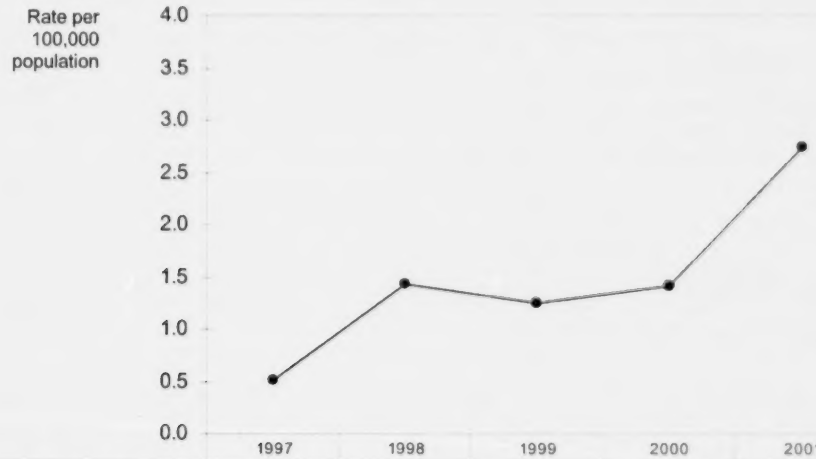


	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Pneumococcal (invasive) Reports - Female	4	18	6	1	0	0	2	7	19	24	0
Pneumococcal (invasive) Reports - Male	8	16	5	3	3	1	1	7	33	26	0
Pneumococcal (invasive) Reports - Unknown	0	0	0	0	0	0	0	0	0	0	1
□ Pneumococcal (invasive) Rate - Female	20.3	21.3	4.9	0.8	0.0	0.0	1.5	2.1	3.2	6.2	
■ Pneumococcal (invasive) Rate - Male	38.5	18.0	3.9	2.2	2.1	0.7	0.7	2.1	5.6	8.0	

Streptococcus Disease (invasive) Group A

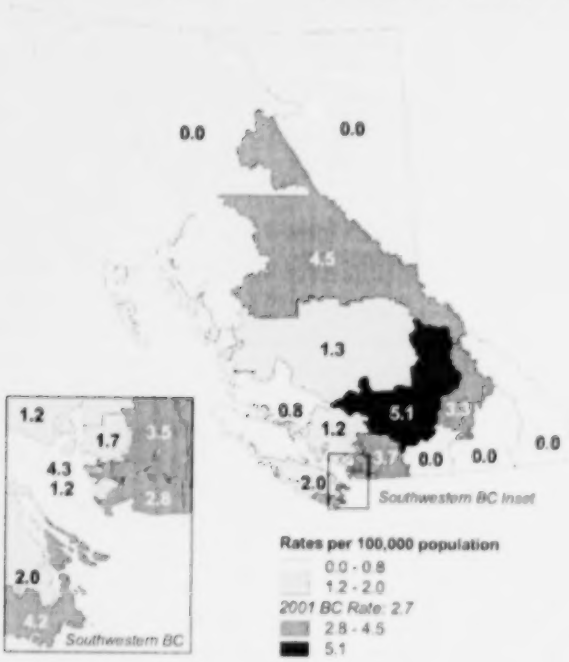
One hundred and twelve cases of invasive group A streptococcal (GAS) disease were reported in 2001, a doubling in reported incidence over the previous year. Fifty-seven percent of the cases were male. The highest rates were in children under 10 years old and in adults. Those aged 10 to 24 years had relatively lower rates of reported disease. Necrotizing fasciitis was reported in 21 (19%) of the cases, streptococcal toxic shock syndrome in 6 (5.4%) of cases. The less severe clinical presentations were: cellulitis in 34%, septic arthritis in 10%, pneumonia in 9%. Two cases were pregnancy-associated. Only 16% of cases had no reported underlying risk factors. Risk factors included a wound in 20%, and surgery in 5%. Ten percent of reported cases were fatal. Seventy-four percent were confirmed by isolation of GAS from blood, and in 27% GAS was isolated from tissue.

Streptococcus Disease (invasive) Group A Rates by Year, 1997-2001



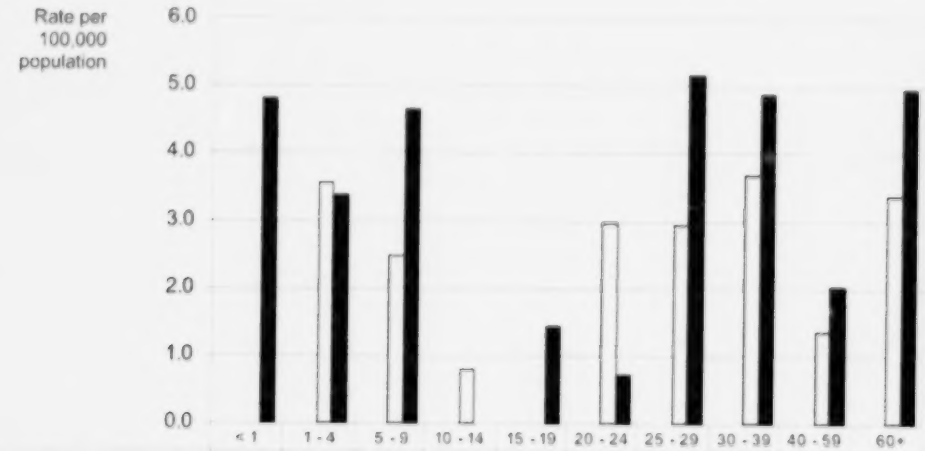
	1997	1998	1999	2000	2001
BC Streptococcal Group A Reports	20	57	50	57	112
BC Streptococcal Group A Rate	0.5	1.4	1.2	1.4	2.7

Streptococcus Disease (invasive) Group A Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	4	3.3
4	South Okanagan - Similkameen	0	0.0
5	Thompson	7	5.1
6	Fraser Valley	9	3.7
7	South Fraser Valley	16	2.8
8	Simon Fraser	18	3.5
9	Coast Garibaldi	1	1.2
10	Central Vancouver Island	5	2.0
11	Upper Island/Central Coast	1	0.8
12	Cariboo	1	1.3
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	6	4.5
16	Vancouver	25	4.3
18	North Shore	3	1.7
19	Richmond	2	1.2
20	Capital	14	4.2

Streptococcus Disease (invasive) Group A Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Strep Group A (Invasive) Reports - Female	0	3	3	1	0	4	4	12	8	13
Strep Group A (Invasive) Reports - Male	1	3	6	0	2	1	7	16	12	16
Strep Group A (Invasive) Rate - Female	0.0	3.5	2.5	0.8	0.0	3.0	2.9	3.7	1.3	3.4
Strep Group A (Invasive) Rate - Male	4.8	3.4	4.7	0.0	1.4	0.7	5.2	4.9	2.0	4.9

Tuberculosis

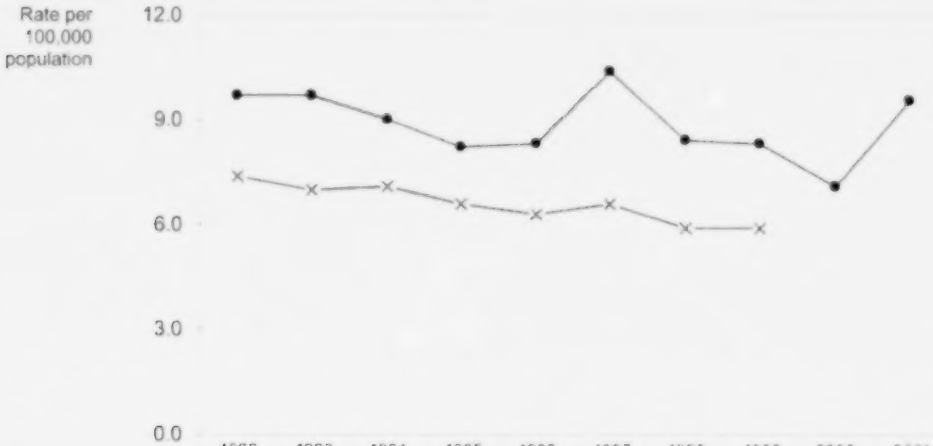
In 2001 there were 391 cases for a rate of 9.54 per 100,000 of active tuberculosis reported in British Columbia, a 35% increase in the number and rate of reported cases compared to 2000. This is the highest rate since 1997. This increase could be partly explained by recent changes in the definition of the date of diagnosis.

The Vancouver, Richmond, Burnaby and South Fraser Valley health boards have rates exceeding the provincial rate. Rates for various health regions vary across the province. The highest incidence rate was observed in Vancouver (25.62 per 100,000) and Richmond (17.42 per 100,000) while the lowest incidence rates were estimated for East and west Kootenay, at 0.0 and 1.21 per 100,000, respectively.

Compared to 2000, the rate of tuberculosis increased in all regions except Central Vancouver Island, Cariboo, Northern Interior and Capital. The incremental increase in the TB rate was high in Peace Liard (0 vs 5.90) and Upper Island/Central Coast (0 vs 6.54), Thompson (1.5 vs 6.51), North West (2.2 vs 8.68) and North Okanagan (0.8 vs 2.47).

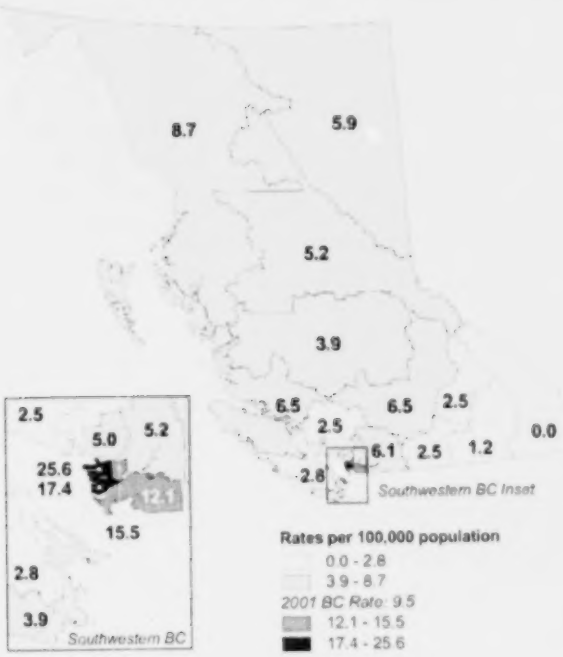
Overall, tuberculosis rates did not differ by gender. However, among those aged 15 to 29 years, this rate was significantly higher in women than in men (10.95 vs 5.08, P-value=0.005). Beyond this age, tuberculosis rate was higher in men (13.56 vs 11.0, P-value=0.07).

Tuberculosis Rates by Year, 1992-2001



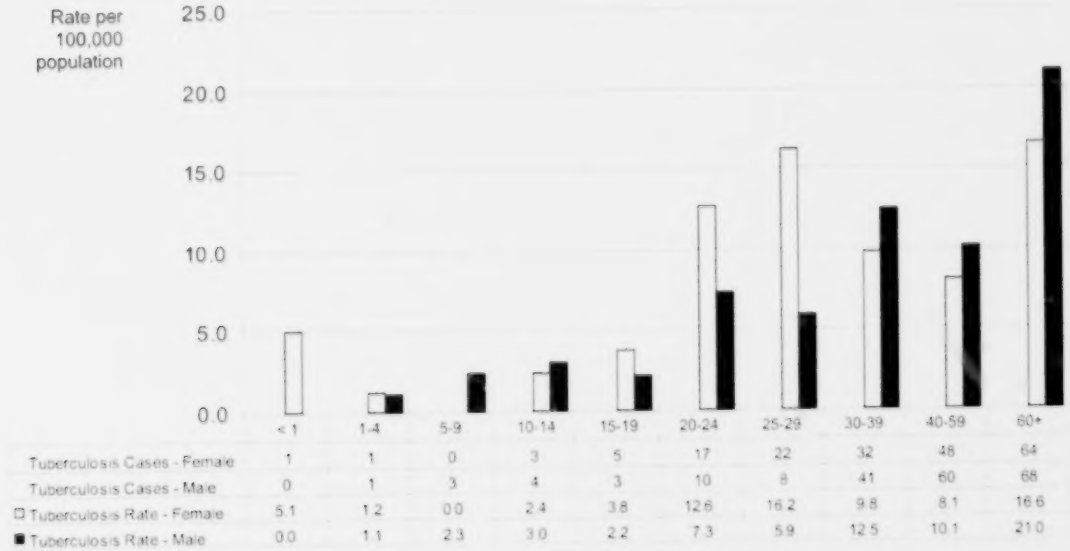
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Tuberculosis Cases	335	346	332	312	323	413	337	332	290	391
BC Tuberculosis Rate	9.7	9.7	9	8.2	8.3	10.4	8.4	8.3	7.1	9.54
Canadian Tuberculosis Rate	7.4	7	7.1	6.6	6.3	6.6	5.9	5.9		

Tuberculosis Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	3	2.5
4	South Okanagan - Similkameen	6	2.5
5	Thompson	9	6.5
6	Fraser Valley	15	6.1
7	South Fraser Valley	70	12.1
8	Simon Fraser	17	5.2
9	Coast Garibaldi	2	2.5
10	Central Vancouver Island	7	2.8
11	Upper Island/Central Coast	8	6.5
12	Cariboo	3	3.9
13	North West	8	8.7
14	Peace Liard	4	5.9
15	Northern Interior	7	5.2
16	Vancouver	150	25.6
17	Burnaby	30	15.5
18	North Shore	9	5.0
19	Richmond	29	17.4
20	Capital	13	3.9

Tuberculosis Rates by Age Group and Sex, 2001



	< 1	1-4	5-9	10-14	15-19	20-24	25-29	30-39	40-59	60+
Tuberculosis Cases - Female	1	1	0	3	5	17	22	32	48	64
Tuberculosis Cases - Male	0	1	3	4	3	10	8	41	60	68
□ Tuberculosis Rate - Female	5.1	1.2	0.0	2.4	3.8	12.6	16.2	9.8	8.1	16.6
■ Tuberculosis Rate - Male	0.0	1.1	2.3	3.0	2.2	7.3	5.9	12.5	10.1	21.0

Leprosy

Leprosy is reported only sporadically in B.C. with no more than 2 cases reported annually since 1994.

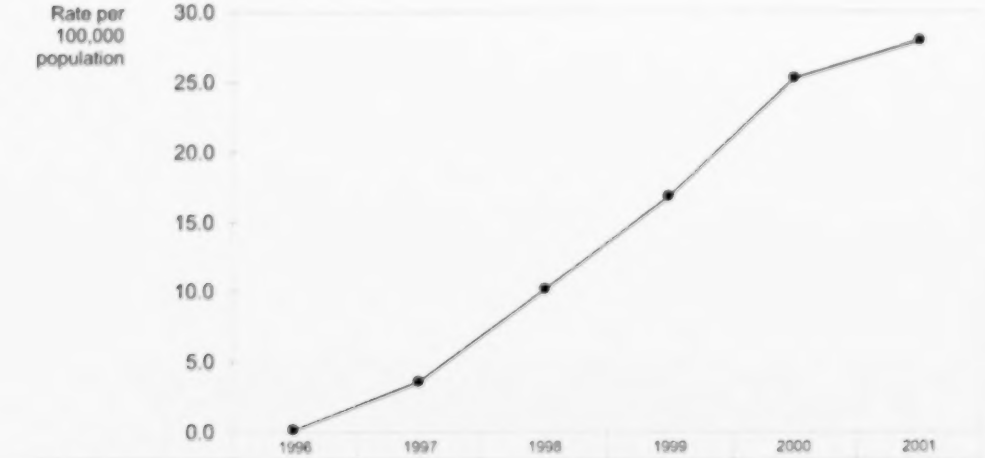
Methicillin Resistant *Staphylococcus aureus*

The rate of reporting of MRSA isolates increased to 28.0 per 100,000 in 2001.

It is not clear what proportion of the results represent disease versus colonization episodes.

Starting 2002, B.C. microbiologists have agreed to assist BCCDC with an alternate tracking strategy which will be informed by test-based denominators and clinical context where possible.

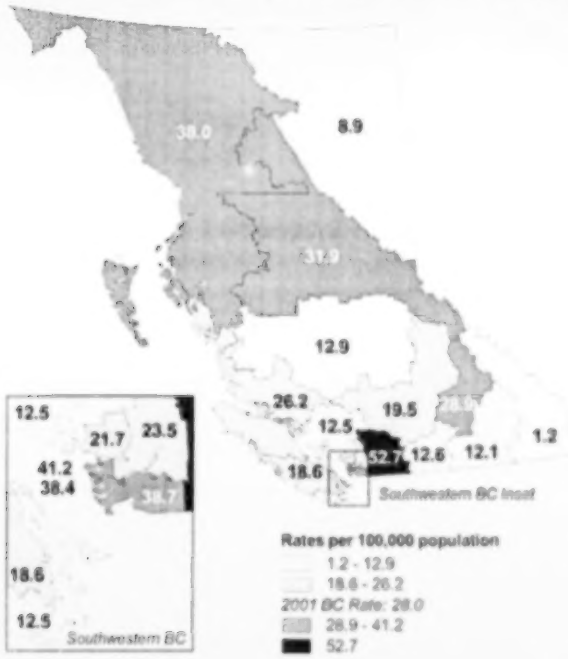
Methicillin Resistant *Staphylococcus aureus* Rates by Year, 1992-2001



	1996	1997	1998	1999	2000	2001
BC MRSA Reports	3	140	407	675	1027	1146
BC MRSA Rate	0.1	3.5	10.2	16.8	25.3	28.0

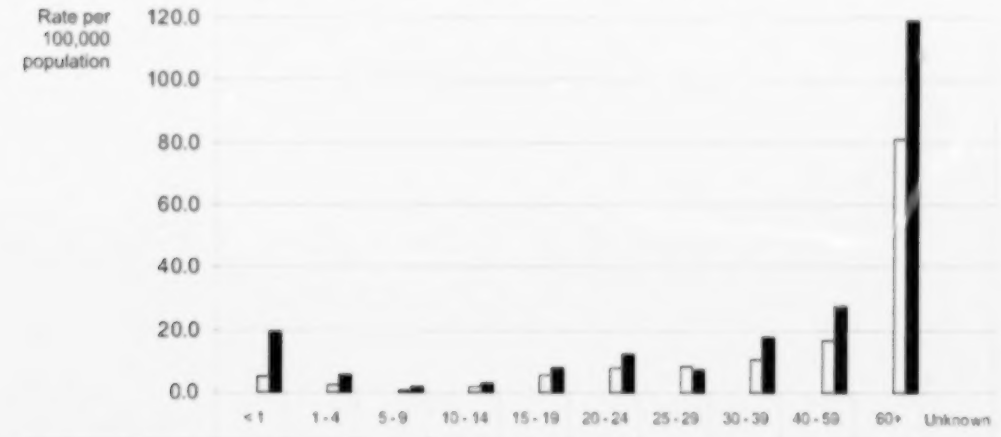
* Canadian Nosocomial Infection Surveillance Program had rates per 1,000 admissions for 22-34 participating hospitals, 9 provinces. Rates per 1,000 admissions: 1995 - 0.5; 1998 - 2.5; and 2000 - 5.3.

Methicillin Resistant *Staphylococcus aureus* Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	1	1.2
2	West Kootenay - Boundary	10	12.1
3	North Okanagan	35	28.9
4	South Okanagan - Similkameen	30	12.6
5	Thompson	27	19.5
6	Fraser Valley	129	52.7
7	South Fraser Valley	224	38.7
8	Simon Fraser	122	23.5
9	Coast Garibaldi	10	12.5
10	Central Vancouver Island	46	18.6
11	Upper Island/Central Coast	32	26.2
12	Cariboo	10	12.9
13	North West	35	38.0
14	Peace Liard	6	8.9
15	Northern Interior	43	31.9
16	Vancouver	241	41.2
18	North Shore	39	21.7
19	Richmond	64	38.4
20	Capital	42	12.5

Methicillin Resistant *Staphylococcus aureus* Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
MRSA Reports - Female	1	2	1	2	7	10	11	35	97	313	2
MRSA Reports - Male	4	5	2	4	11	17	10	58	163	385	1
MRSA Reports - Unknown	0	0	0	0	0	0	0	0	1	4	0
MRSA Rate - Female	5.1	2.4	0.8	1.6	5.3	7.4	8.1	10.7	16.3	81.0	
MRSA Rate - Male	19.2	5.6	1.6	3.0	7.9	12.3	7.4	17.6	27.4	119.1	

Vancomycin Resistant Enterococci

The rate of reporting of VRE isolates declined from 1.1 to 0.8 per 100,000 between 2000 and 2001.

It is not clear what proportion of the results represent disease versus colonization episodes.

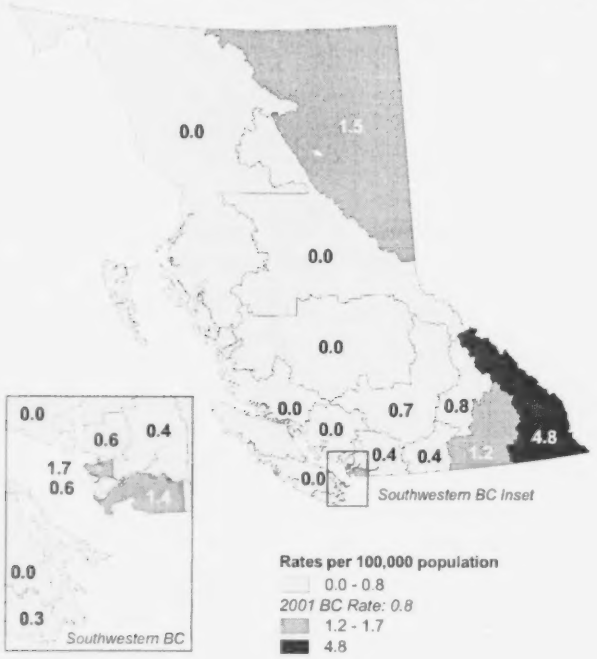
Starting 2002, B.C. microbiologists have agreed to assist BCCDC with an alternate tracking strategy which will be informed by test-based denominators and clinical context where possible.

Vancomycin Resistant Enterococci Rates by Year, 1998-2001

	1998	1999	2000	2001
BC VRE Reports	13	9	45	33
BC VRE Rate	0.3	0.2	1.1	0.8

* Canadian Nosocomial Infection Surveillance Program had rates per 10,000 patient admissions in the West Region (7 participating sites). Rates per 10,000 patient admissions (starting year October 1/ending year September 31): 98/99 - 4.0; 99/00 - 6.2; and 00/01 - 10.1.

Vancomycin Resistant Enterococci Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	4	4.8
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	1	0.8
4	South Okanagan - Similkameen	1	0.4
5	Thompson	1	0.7
6	Fraser Valley	1	0.4
7	South Fraser Valley	8	1.4
8	Simon Fraser	2	0.4
9	Coast Garibaldi	0	0.0
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	1	1.5
15	Northern Interior	0	0.0
16	Vancouver	10	1.7
18	North Shore	1	0.6
19	Richmond	1	0.6
20	Capital	1	0.3

Vancomycin Resistant Enterococci Rates by Age Group and Sex, 2001

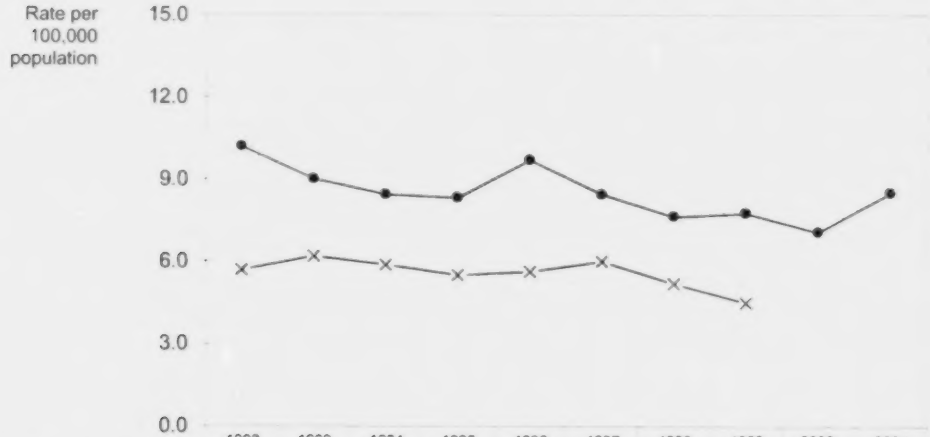
	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
VRE Reports - Female	0	0	0	0	0	0	0	2	1	11
VRE Reports - Male	0	0	0	0	0	0	0	2	4	13
□ VRE Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	2.8
■ VRE Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.7	4.0

Enteric, Food and Waterborne Diseases

Amebiasis

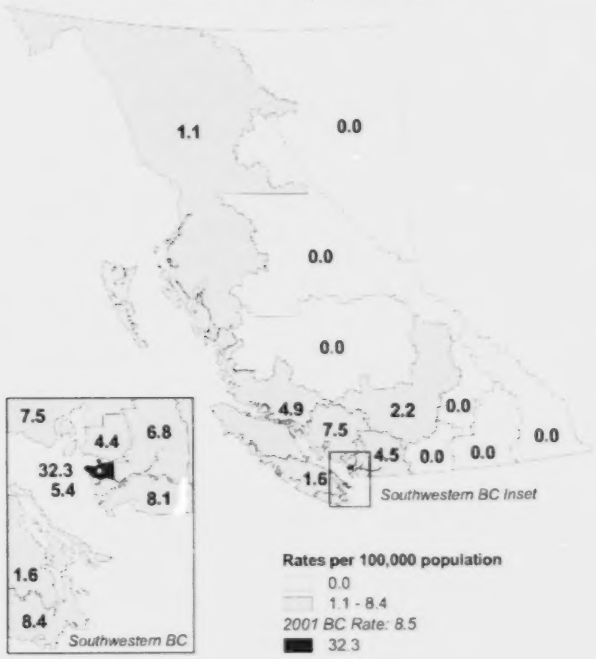
Reporting of amebiasis showed a slight increase in 2001, but the overall year to year rate has remained relatively stable. A seasonal pattern is not obvious. Reporting was highest among males between 25 to 59 years of age. Vancouver had the highest rate at 32.3 cases per 100,000. Seven regions reported no cases.

Amebiasis Rates by Year, 1992-2001



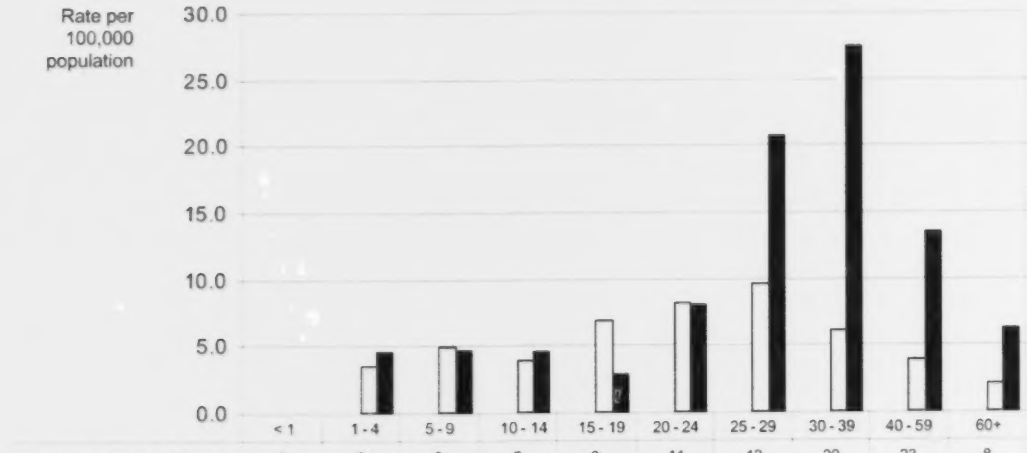
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Amebiasis Reports	353	322	311	315	375	333	304	312	288	347
—●— BC Amebiasis Rate	10.2	9.0	8.4	8.3	9.7	8.4	7.6	7.7	7.1	8.5
—X— Canadian Amebiasis Rate	5.7	6.2	5.9	5.5	5.6	6.0	5.2	4.5		

Amebiasis Rates by Health Region, 2001



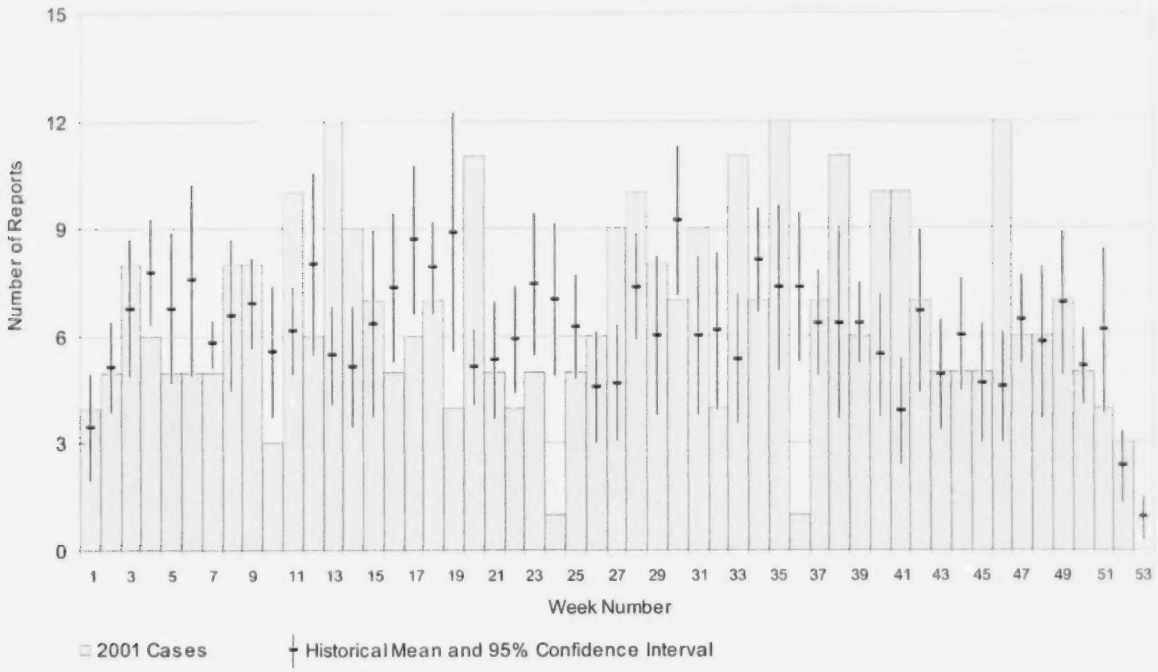
HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	0	0.0
5	Thompson	3	2.2
6	Fraser Valley	11	4.5
7	South Fraser Valley	47	8.1
8	Simon Fraser	35	6.8
9	Coast Garibaldi	6	7.5
10	Central Vancouver Island	4	1.6
11	Upper Island/Central Coast	6	4.9
12	Cariboo	0	0.0
13	North West	1	1.1
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	189	32.3
18	North Shore	8	4.4
19	Richmond	9	5.4
20	Capital	28	8.4

Amebiasis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Amebiasis Reports - Female	0	3	6	5	9	11	13	20	23	8
Amebiasis Reports - Male	0	4	6	6	4	11	28	90	80	20
□ Amebiasis Rate - Female	0.0	3.5	4.9	3.9	6.8	8.2	9.6	6.1	3.9	2.1
■ Amebiasis Rate - Male	0.0	4.5	4.7	4.5	2.9	8.0	20.6	27.4	13.5	6.2

2001 Amebiasis Reports Compared to Historical Numbers from 1992 to 2000


15
12
9
6
3
0
Number of Reports
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53
Week Number
2001 Cases
Historical Mean and 95% Confidence Interval

Botulism

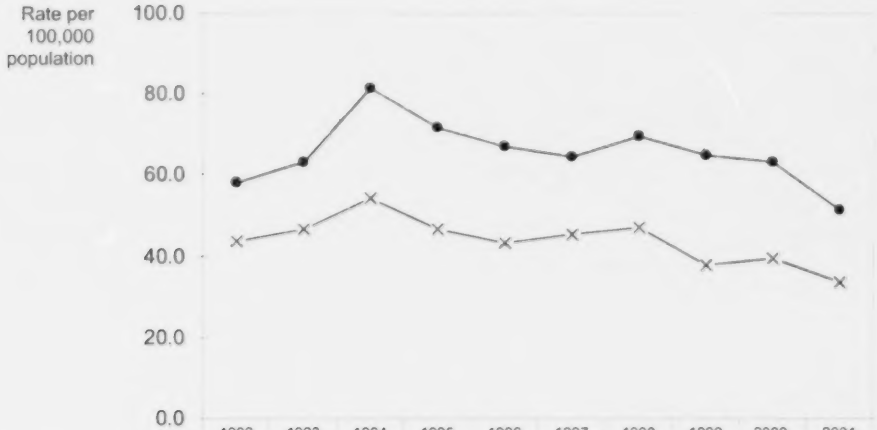
Two confirmed cases of botulism were reported in 2001, both in North West. The two cases were associated with consumption of fermented fish eggs.

Campylobacteriosis

Reporting declined to its lowest level since 1992. This decline is likely artifactual as it coincides with the introduction of a provincial guideline in the late 1990s for reduced stool testing for patients with diarrhea. In 2001, there were 2100 reports for a rate of 51.3 cases per 100,000. Reporting was highest during the summer (weeks 23 through 37).

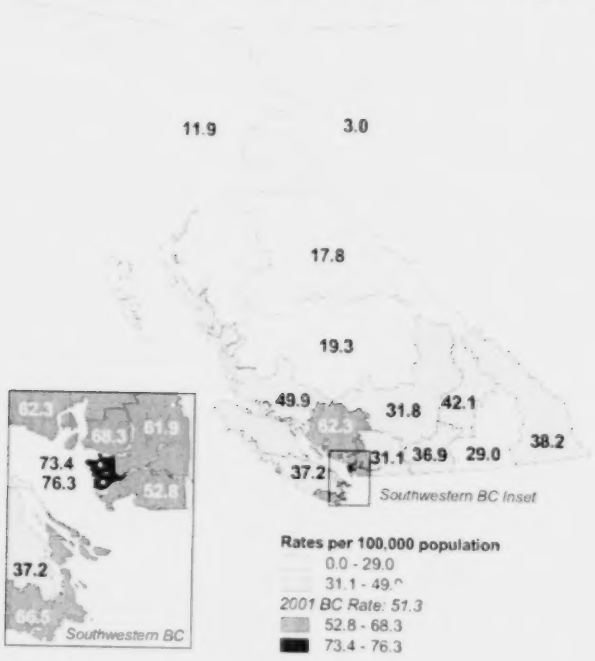
The age distribution of cases followed an expected bimodal distribution, with peak reporting rates in the less than 5 year age group, and the 20 to 29 year age group. The highest reporting rates were generally seen in the Lower Mainland and on Vancouver Island.

Campylobacteriosis Rates by Year, 1992-2001



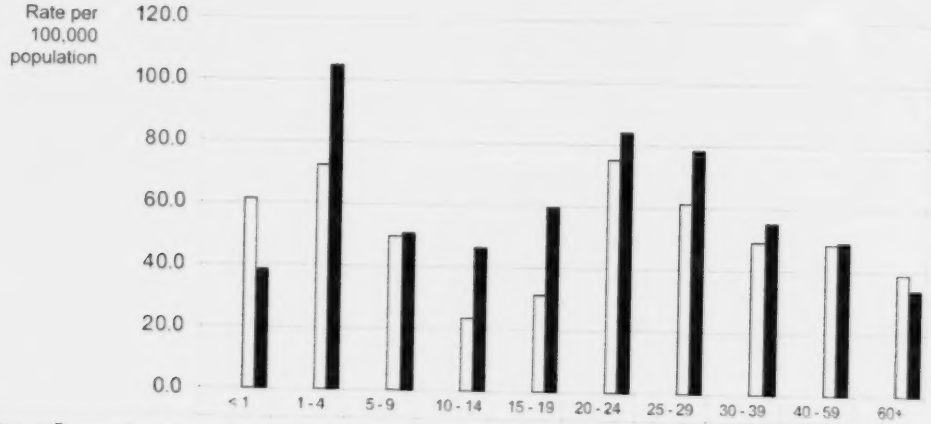
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Campylobacteriosis Reports	2008	2251	2996	2710	2595	2557	2771	2618	2569	2100
BC Campylobacteriosis Rate	57.9	63.0	81.4	71.6	66.8	64.6	69.3	65.0	63.2	51.3
Canadian Campylobacteriosis Rate	43.7	46.8	54.2	46.6	43.1	45.2	47.1	37.7	39.2	33.4

Campylobacteriosis Rates by Health Region, 2001



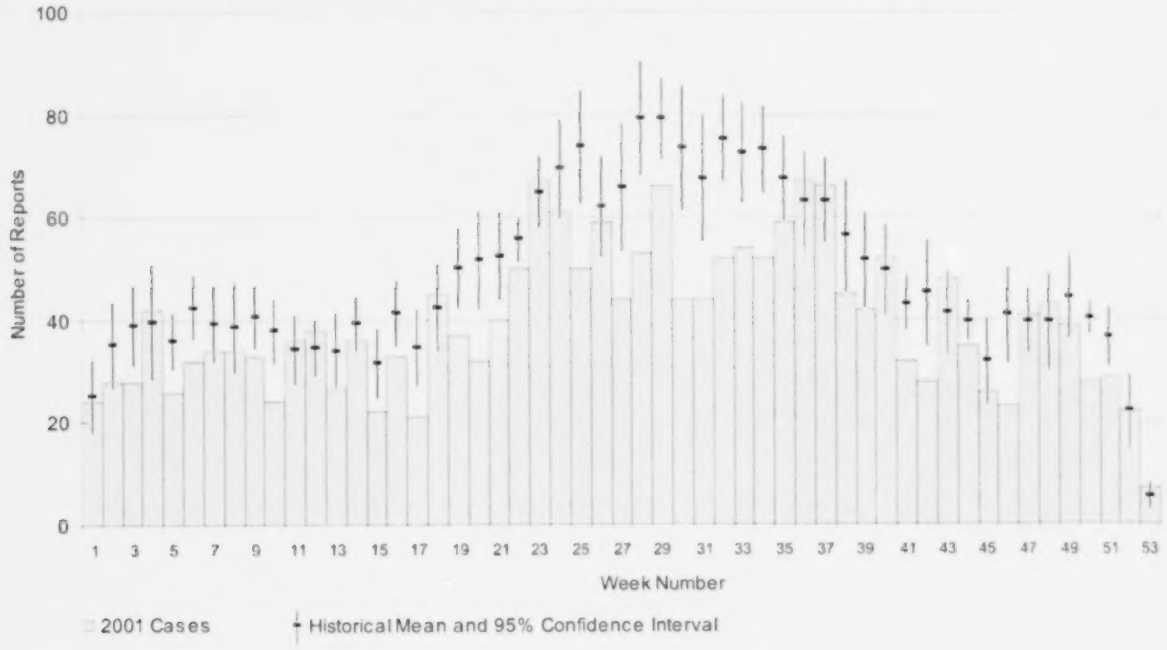
HR	Health Region	Cases	Rate
1	East Kootenay	32	38.2
2	West Kootenay - Boundary	24	29.0
3	North Okanagan	51	42.1
4	South Okanagan - Similkameen	88	36.9
5	Thompson	44	31.8
6	Fraser Valley	76	31.1
7	South Fraser Valley	306	52.8
8	Simon Fraser	321	61.9
9	Coast Garibaldi	50	62.3
10	Central Vancouver Island	92	37.2
11	Upper Island/Central Coast	61	49.9
12	Cariboo	15	19.3
13	North West	11	11.9
14	Peace Liard	2	3.0
15	Northern Interior	24	17.8
16	Vancouver	430	73.4
18	North Shore	123	68.3
19	Richmond	127	76.3
20	Capital	223	66.5

Campylobacteriosis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Campylobacteriosis Reports - Female	12	61	60	30	41	101	83	160	287	151
Campylobacteriosis Reports - Male	8	93	65	62	83	116	106	181	289	110
Campylobacteriosis Reports - Unknown	0	0	1	0	0	0	0	0	0	0
□ Campylobacteriosis Rate - Female	61.0	72.2	49.3	23.6	31.2	75.1	61.0	48.9	48.1	39.1
■ Campylobacteriosis Rate - Male	38.5	104.4	50.5	46.2	59.5	84.1	78.1	55.0	48.6	34.0

2001 Campylobacteriosis Reports Compared to Historical Numbers from 1992 to 2000 (excluding outbreak cases in weeks 27 and 28 of 1998)

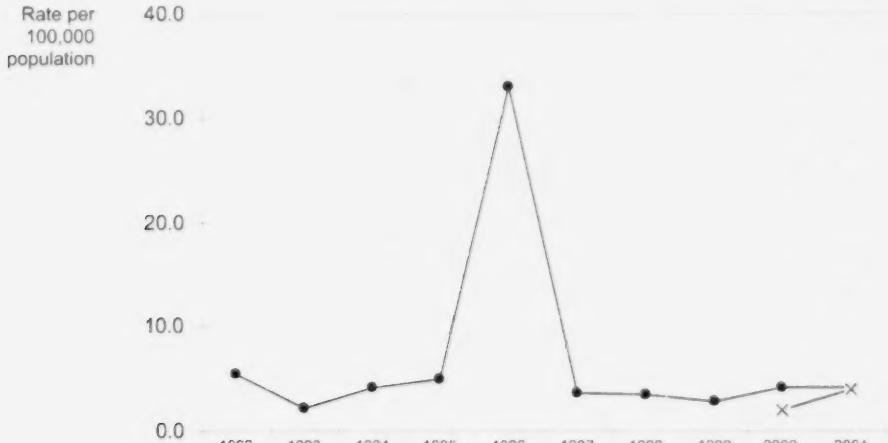


Cryptosporidiosis

One hundred and sixty-seven cases were reported for a rate of 4.1 cases per 100,000. The reporting rate has remained relatively stable since a peak year in 1996 when 4 outbreaks occurred. Peaks in reporting occurred during the spring (weeks 17 through 24) and during the fall (weeks 35-41). Reporting exceeded expected levels over several weeks. No waterborne outbreaks of cryptosporidiosis were identified in 2001 in BC.

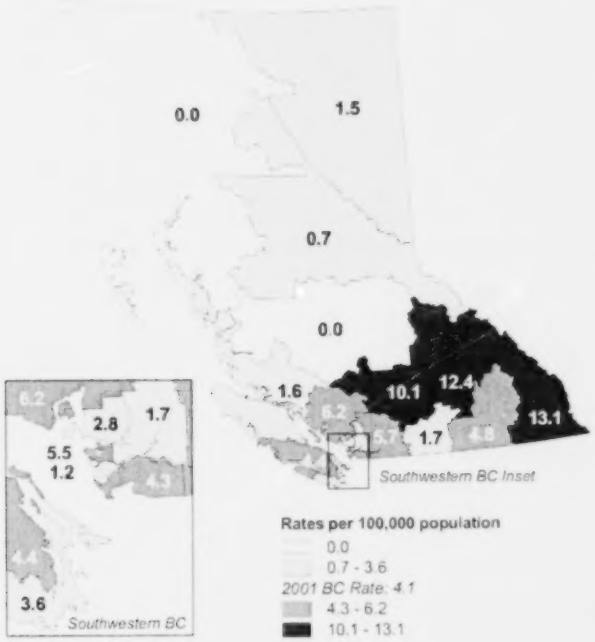
Peak reporting was seen, as expected, in the under 5 age group. Levels of immunity are higher in older age groups. Males accounted for 50 percent of cases. The highest reporting levels were in East Kootenay, North Okanagan, and Thompson with rates of 13.1, 12.4, and 10.1 cases per 100,000 population, respectively.

Cryptosporidiosis Rates by Year, 1992-2001



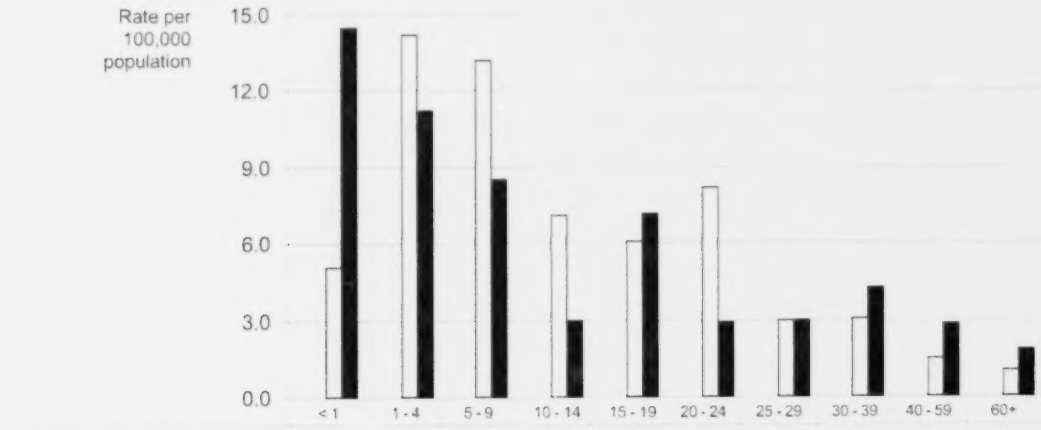
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Cryptosporidiosis Reports	187	74	149	189	1281	145	141	110	170	167
BC CryptosporidiosisRate	5.4	2.1	4.0	5.0	33.0	3.7	3.5	2.7	4.2	4.1
Canadian Cryptosporidiosis Rate									1.9	4.0

Cryptosporidiosis Rates by Health Region, 2001



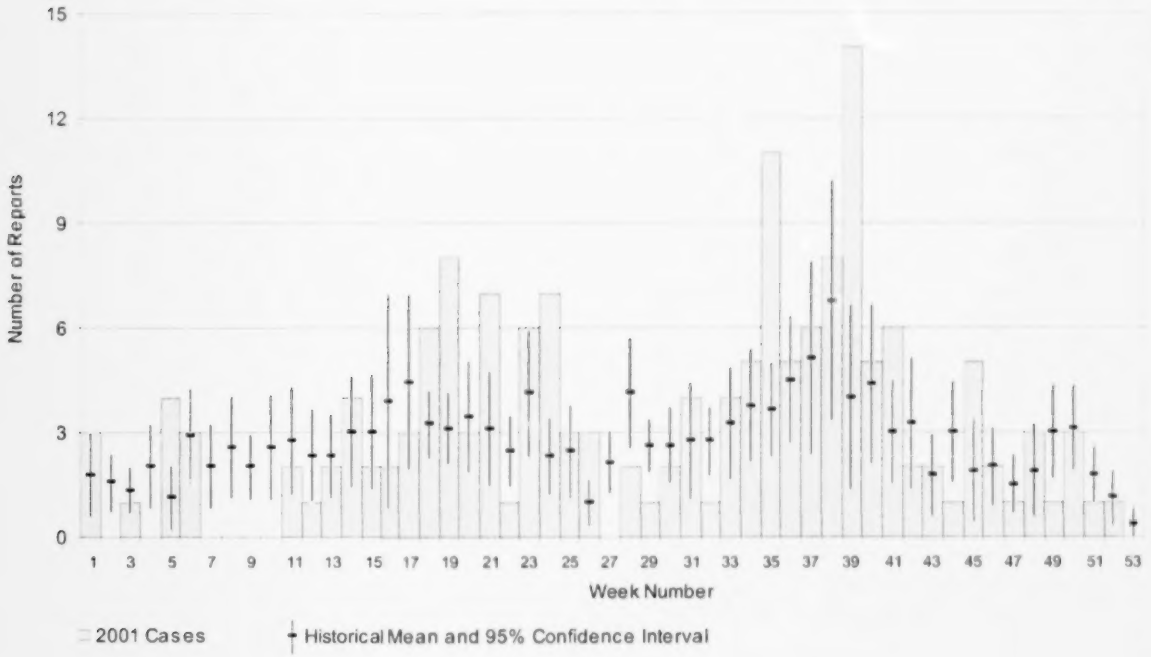
HR	Health Region	Cases	Rate
1	East Kootenay	11	13.1
2	West Kootenay - Boundary	4	4.8
3	North Okanagan	15	12.4
4	South Okanagan - Similkameen	4	1.7
5	Thompson	14	10.1
6	Fraser Valley	14	5.7
7	South Fraser Valley	25	4.3
8	Simon Fraser	9	1.7
9	Coast Garibaldi	5	6.2
10	Central Vancouver Island	11	4.4
11	Upper Island/Central Coast	2	1.6
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	1	1.5
15	Northern Interior	1	0.7
16	Vancouver	32	5.5
18	North Shore	5	2.8
19	Richmond	2	1.2
20	Capital	12	3.6

Cryptosporidiosis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Cryptosporidiosis Reports - Female	1	12	16	9	8	11	4	10	9	4
Cryptosporidiosis Reports - Male	3	10	11	4	10	4	4	14	17	6
□ Cryptosporidiosis Rate - Female	5.1	14.2	13.2	7.1	6.1	8.2	2.9	3.1	1.5	1.0
■ Cryptosporidiosis Rate - Male	14.4	11.2	8.5	3.0	7.2	2.9	2.9	4.3	2.9	1.9

2001 Cryptosporidiosis Reports Compared to Historical Numbers from 1992 to 2000 (excluding outbreak cases in weeks 26 through 47 of 1996)

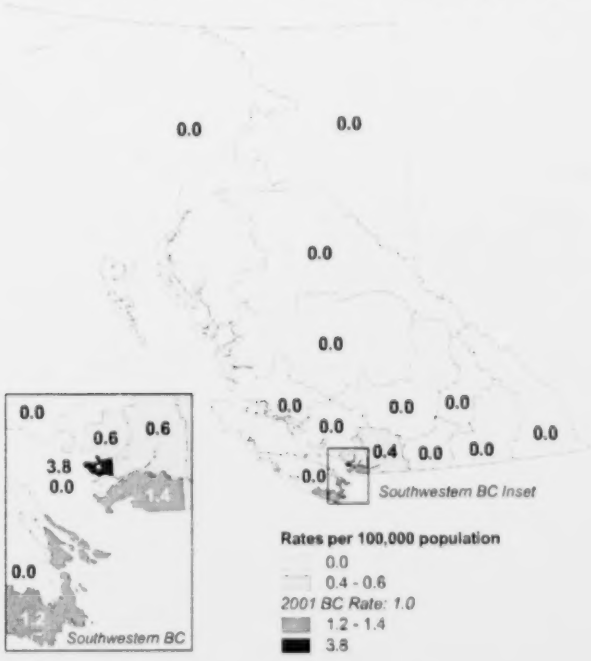

15
12
9
6
3
0
Number of Reports
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53
Week Number
2001 Cases
Historical Mean and 95% Confidence Interval

Cyclosporidasis

Reporting of *Cyclospora cayetanensis* infections rose to 39 cases in 2001, the highest level ever in BC. Most cases of cyclosporiasis are related to travel to regions of the world where the disease is endemic. Reporting was highest among young adults in the lower mainland.

An outbreak of 18 cases occurred in Vancouver during May and June. Thirty percent of cases were of Vietnamese ethnicity. A case control study associated the outbreak with consumption of uncooked Thai basil, an ingredient in some Vietnamese foods. The implicated Thai basil was imported from the United States. The Canadian Food Inspection Agency and the US FDA were notified.

Cyclosporidasis Rates by Health Region, 2001

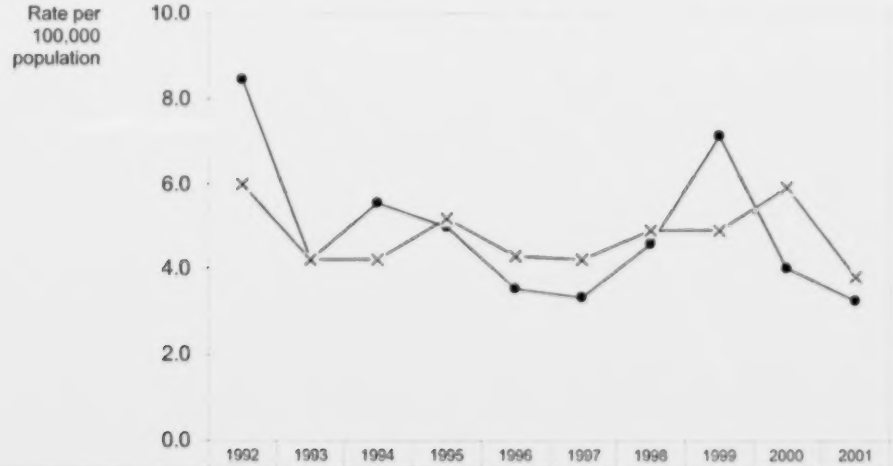


HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	0	0.0
5	Thompson	0	0.0
6	Fraser Valley	1	0.4
7	South Fraser Valley	6	1.4
8	Simon Fraser	3	0.6
9	Coast Ganbaldi	0	0.0
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	22	3.8
18	North Shore	1	0.6
19	Richmond	0	0.0
20	Capital	4	1.2

Verotoxigenic *E. coli* (VTEC) Infection

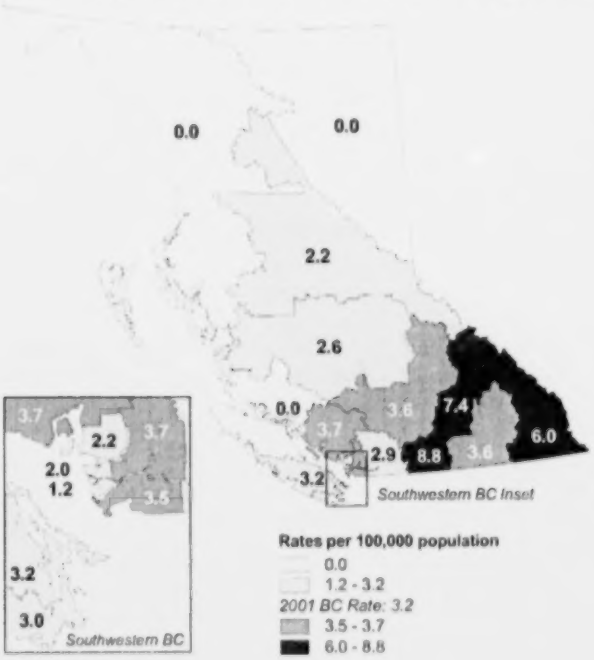
Reporting fell in 2001 to the lowest level in a decade at 133 cases for a rate of 3.2 cases per 100,000. The provincial rate is slightly lower than the national VTEC reporting rate (3.8 cases per 100,000) The highest regional reported rates were seen in South Okanagan-Similkameen, North Okanagan, and East Kootenay. Although some peaks in reporting occurred during weeks 25 –34, the number of cases were lower than expected during the summer of 2001. Children under 5 had the highest reported rate.

Verotoxigenic *E. coli* Rates by Year, 1992-2001



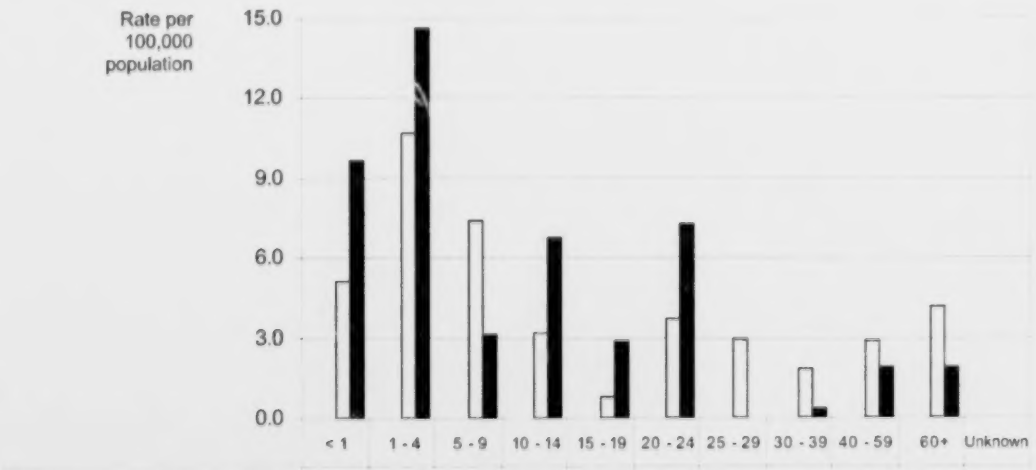
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Verotoxigenic E. coli Reports	292	150	204	189	137	132	183	287	164	133
—●— BC Verotoxigenic E. coli Rate	8.4	4.2	5.5	5.0	3.5	3.3	4.6	7.1	4.0	3.2
—×— Canadian Verotoxigenic E. coli Rate	6.0	4.2	4.2	5.2	4.3	4.2	4.9	4.9	5.9	3.8

Verotoxigenic *E. coli* Infection Rates by Health Region, 2001



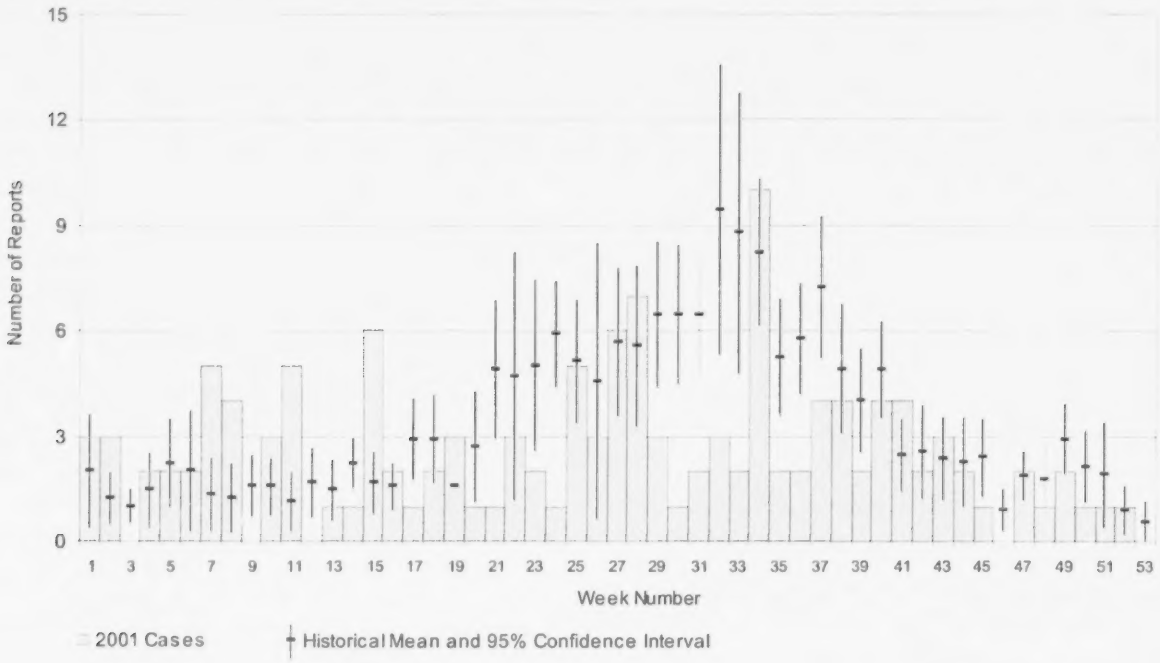
HR	Health Region	Cases	Rate
1	East Kootenay	5	6.0
2	West Kootenay - Boundary	3	3.6
3	North Okanagan	9	7.4
4	South Okanagan - Similkameen	21	8.8
5	Thompson	5	3.6
6	Fraser Valley	7	2.9
7	South Fraser Valley	20	3.5
8	Simon Fraser	19	3.7
9	Coast Garibaldi	3	3.7
10	Central Vancouver Island	8	3.2
11	Upper Island/Central Coast	0	0.0
12	Cariboo	2	2.6
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	3	2.2
16	Vancouver	12	2.0
18	North Shore	4	2.2
19	Richmond	2	1.2
20	Capital	10	3.0

Verotoxigenic *E. coli* Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Verotoxigenic E. coli Reports - Female	1	9	9	4	1	5	4	6	17	16	1
Verotoxigenic E. coli Reports - Male	2	13	4	9	4	10	0	1	11	6	0
□ Verotoxigenic E. coli Rate - Female	5.1	10.6	7.4	3.1	0.8	3.7	2.9	1.8	2.9	4.1	
■ Verotoxigenic E. coli Rate - Male	9.8	14.6	3.1	6.7	2.9	7.3	0.0	0.3	1.9	1.9	

2001 Verotoxigenic *E.coli* Reports Compared to Historical Numbers from 1992 to 2000 (excluding outbreak cases in weeks 44 through 48 of 1999)

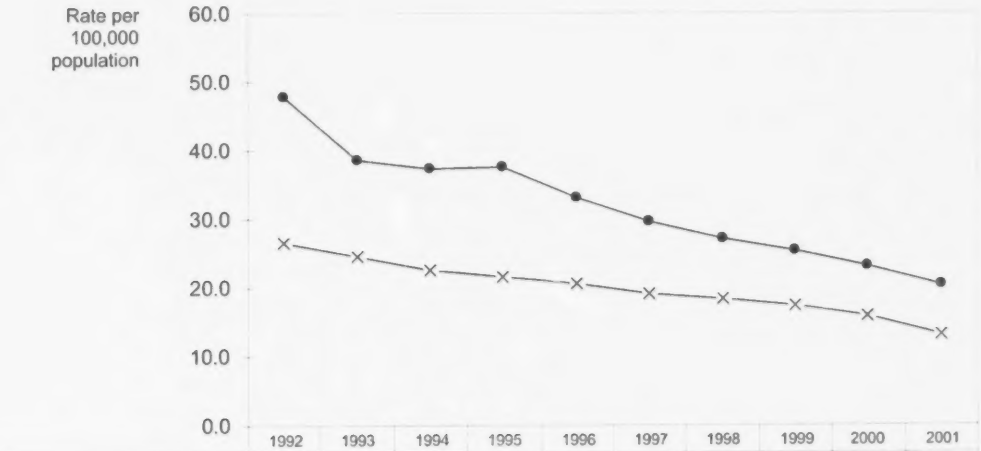

15
12
9
6
3
0
Number of Reports
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53
Week Number
2001 Cases
Historical Mean and 95% Confidence Interval

Giardiasis

Giardiasis reports have continued to fall since 1990 and are now 50 percent lower than in 1992. In 2001, eight hundred and thirty-three cases were reported for a rate of 20.3 cases per 100,000. Reporting increased during the summer and fall (weeks 26 to 43). No waterborne outbreaks were identified during the year.

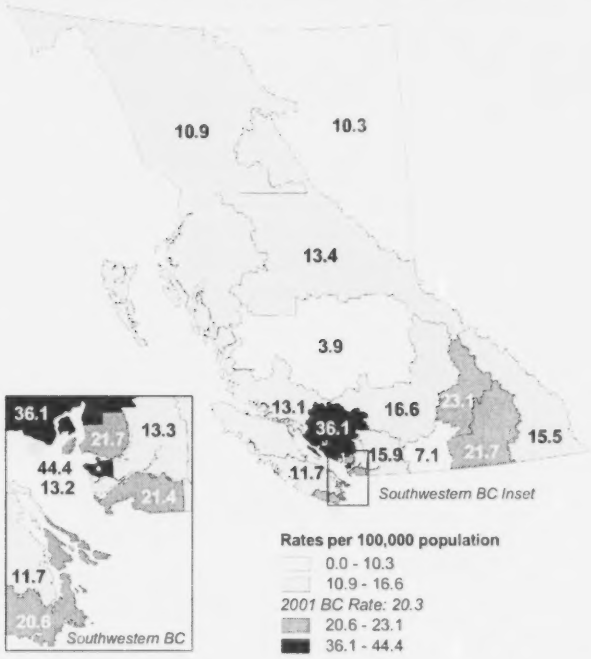
Reported cases followed a bimodal age distribution with peaks in the 1 to 4 year, and the 20 to 39 year age groups. Vancouver had the highest rate at 44.4 cases per 100,000.

Giardiasis Rates by Year, 1992-2001



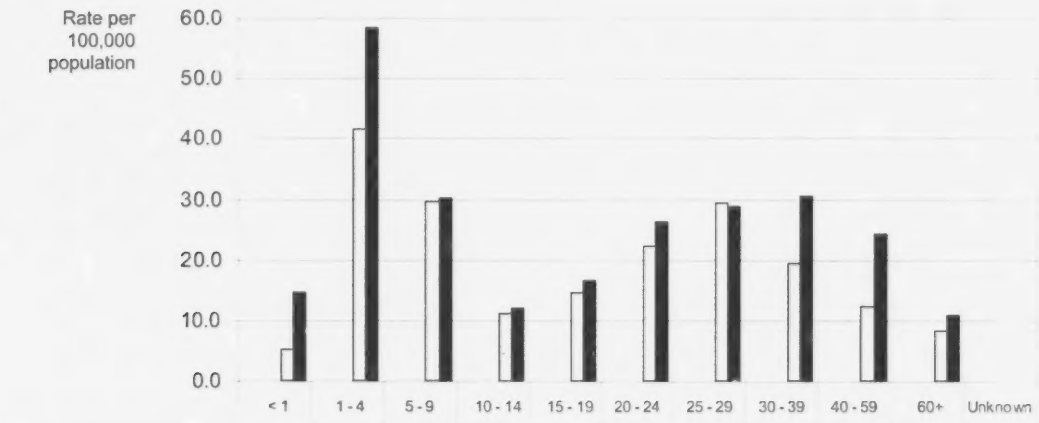
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Giardiasis Reports	1653	1371	1376	1420	1281	1164	1080	1014	939	833
BC Giardiasis Rate	47.6	38.4	37.4	37.5	33.0	29.4	27.0	25.2	23.1	20.3
Canadian Giardiasis Rate	26.4	24.6	22.5	21.4	20.4	18.9	18.2	17.2	15.7	12.9

Giardiasis Rates by Health Region, 2001



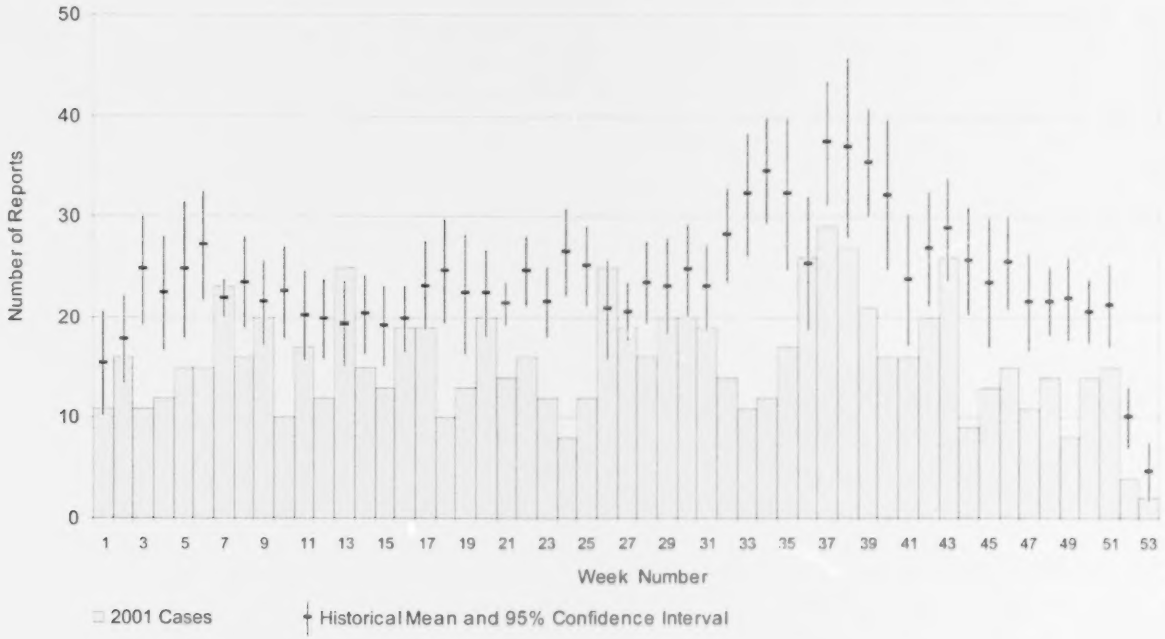
HR	Health Region	Cases	Rate
1	East Kootenay	13	15.5
2	West Kootenay - Boundary	18	21.7
3	North Okanagan	28	23.1
4	South Okanagan - Similkameen	17	7.1
5	Thompson	23	16.6
6	Fraser Valley	39	15.9
7	South Fraser Valley	124	21.4
8	Simon Fraser	69	13.3
9	Coast Garibaldi	29	36.1
10	Central Vancouver Island	29	11.7
11	Upper Island/Central Coast	16	13.1
12	Cariboo	3	3.9
13	North West	10	10.9
14	Peace Liard	7	10.3
15	Northern Interior	18	13.4
16	Vancouver	260	44.4
18	North Shore	39	21.7
19	Richmond	22	13.2
20	Capital	69	20.6

Giardiasis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Giardiasis Reports - Female	1	35	36	14	19	30	40	63	73	32	0
Giardiasis Reports - Male	3	52	39	16	23	36	39	100	144	35	1
Giardiasis Reports - Unknown	0	0	1	0	0	0	0	1	0	0	0
□ Giardiasis Rate - Female	5.1	41.4	29.6	11.0	14.5	22.3	29.4	19.3	12.2	8.3	
■ Giardiasis Rate - Male	14.4	58.4	30.3	11.9	16.5	26.1	28.8	30.4	24.2	10.8	

2001 Giardiasis Reports Compared to Historical Numbers from 1992 to 2000

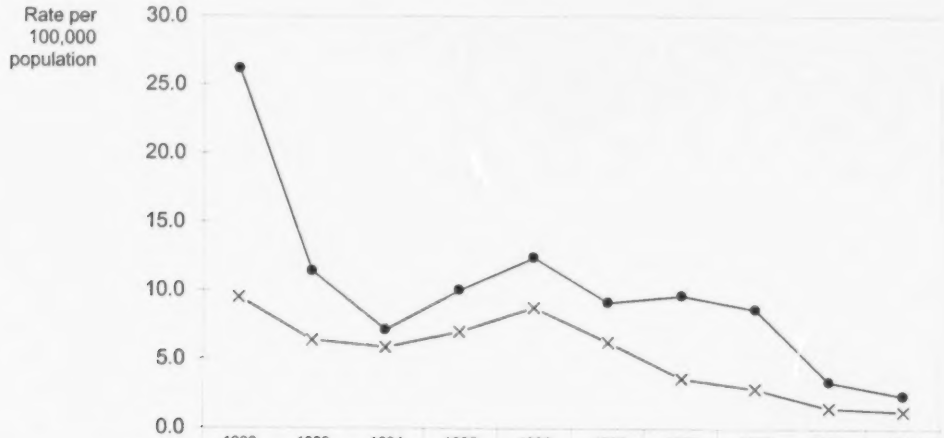


Hepatitis A

The annual number and rate of reported (acute) hepatitis A in 2001 continued a declining trend observed since 1996. Over this 5 year period, the rate of reported hepatitis A decreased by 81%, mirroring a similar trend across Canada. Nevertheless, the crude rate in 2001 in British Columbia (2.3 per 100,000) remained 77% higher than the Canadian rate (1.3 per 100,000). Over the past 10 years, British Columbia has consistently experienced reported rates of hepatitis A above the national average.

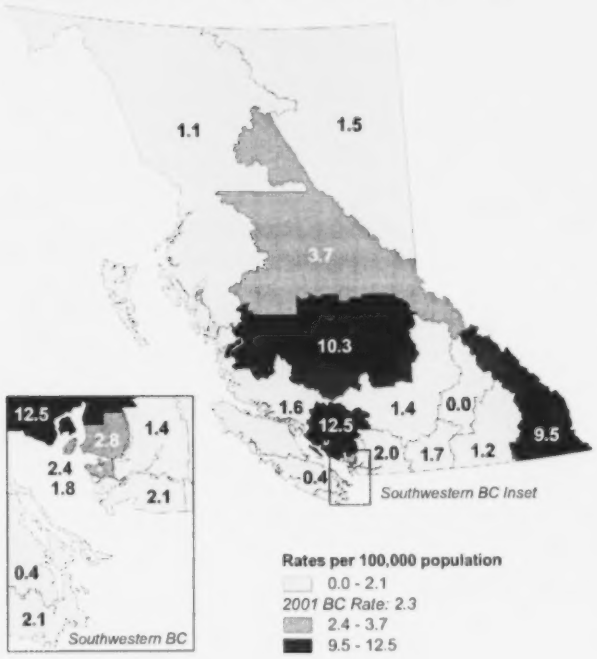
Seven of 96 reported cases (7%) occurred in children under 10 years of age, although this underestimates the true incidence since most acute hepatitis A infections in young children are asymptomatic. During 2001, the provincial hepatitis A immunization program was extended, offering publicly funded vaccine to men who have sex with men and persons with chronic liver disease, including chronic hepatitis B.

Hepatitis A Rates by Year, 1992-2001



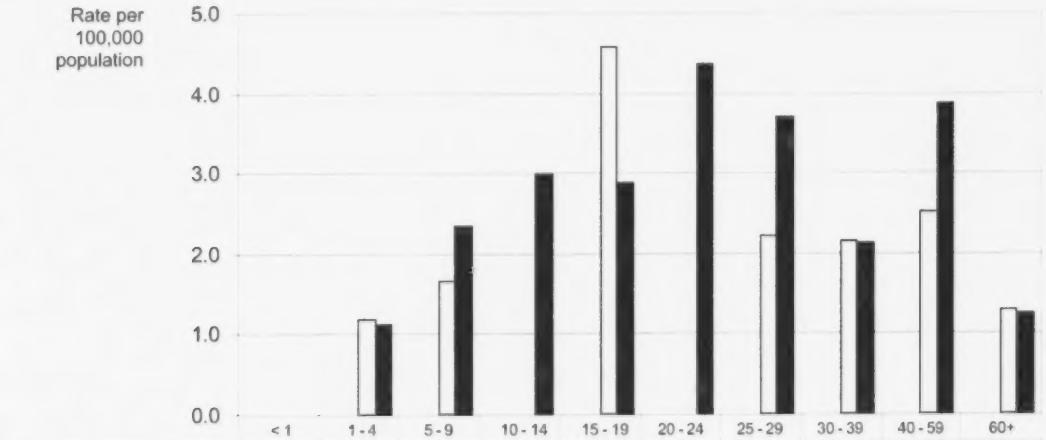
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Hepatitis A Reports	905	407	261	378	481	360	385	349	137	96
—●— BC Hepatitis A Rate	26.1	11.4	7.1	10.0	12.4	9.1	9.6	8.7	3.4	2.3
—X— Canadian Hepatitis A Rate	9.5	6.4	5.9	7.0	8.8	6.3	3.6	2.9	1.5	1.3

Hepatitis A Rates by Health Region, 2001



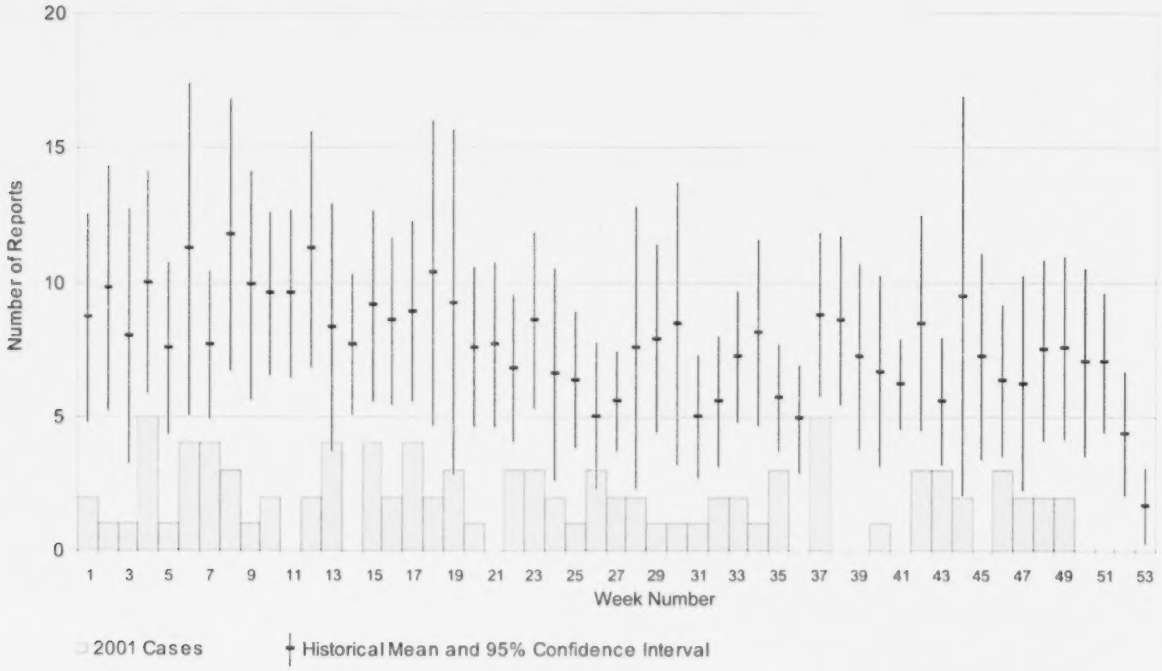
HR	Health Region	Cases	Rate
1	East Kootenay	8	9.5
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	4	1.7
5	Thompson	2	1.4
6	Fraser Valley	5	2.0
7	South Fraser Valley	12	2.1
8	Simon Fraser	7	1.4
9	Coast Garibaldi	10	12.5
10	Central Vancouver Island	1	0.4
11	Upper Island/Central Coast	2	1.6
12	Cariboo	8	10.3
13	North West	1	1.1
14	Peace Liard	1	1.5
15	Northern Interior	5	3.7
16	Vancouver	14	2.4
18	North Shore	5	2.8
19	Richmond	3	1.8
20	Capital	7	2.1

Hepatitis A Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Hepatitis A Reports - Female	0	1	2	0	6	0	3	7	15	5
Hepatitis A Reports - Male	0	1	3	4	4	6	5	7	23	4
□ Hepatitis A Rate - Female	0.0	1.2	1.6	0.0	4.6	0.0	2.2	2.1	2.5	1.3
■ Hepatitis A Rate - Male	0.0	1.1	2.3	3.0	2.9	4.4	3.7	2.1	3.9	1.2

2001 Hepatitis A Reports Compared to Historical Numbers from 1992 to 2000


20
15
10
5
0
Number of Reports
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53
Week Number
2001 Cases
Historical Mean and 95% Confidence Interval

Listeriosis

Five cases of listeriosis were reported in 2001, all in adults 30 years of age and older. No outbreaks were reported.

Salmonellosis

Reporting has remained stable over the past 5 years, after a downward trend over the preceding decade. Six hundred and seventy-eight cases were reported in 2000 for a rate of 16.5 cases per 100,000. The reporting rate was highest in children less than 5 years of age. Richmond, Vancouver, Thompson, and South Fraser had the highest rates.

For details on Salmonella serotypes identified during the year, please see the BCCDC Laboratory Services annual report.

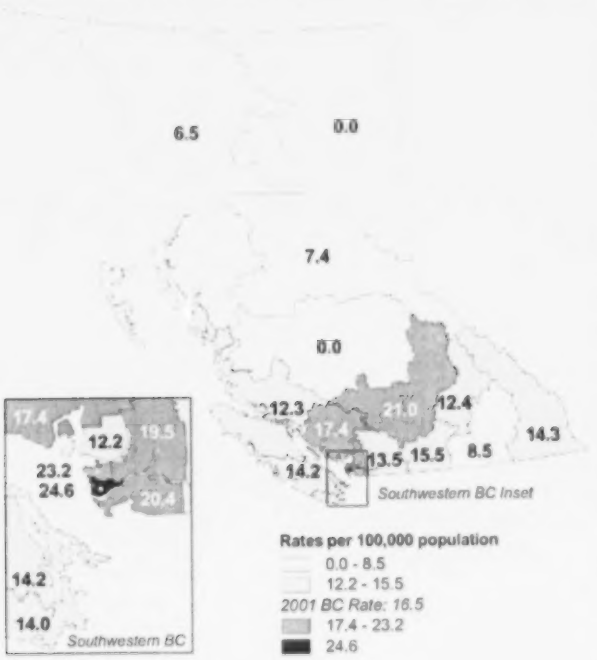
An outbreak of 143 *Salmonella* Enteritidis infections affected BC and 4 other Canadian provinces in 2001. A case-control study and laboratory testing associated the outbreak with raw, whole natural almonds. The almonds were imported into Canada from the United States. Eighty-five percent of the illnesses occurred in Ontario. In BC, 5 cases, occurring in April and May, were linked to the outbreak.

BC was also affected by an international outbreak of *Salmonella* Stanley infections in 2001. The outbreak was associated with consumption of imported Chinese peanuts. Thirty-five *S.* Stanley cases were reported in BC between May and September and 69% were of Asian ethnicity. A number of cases were infected with multiple *Salmonella* serotypes, and a number of serotypes were isolated from the implicated peanuts. Cases related to this outbreak were also seen in Australia.

Salmonellosis Rates by Year, 1992-2001

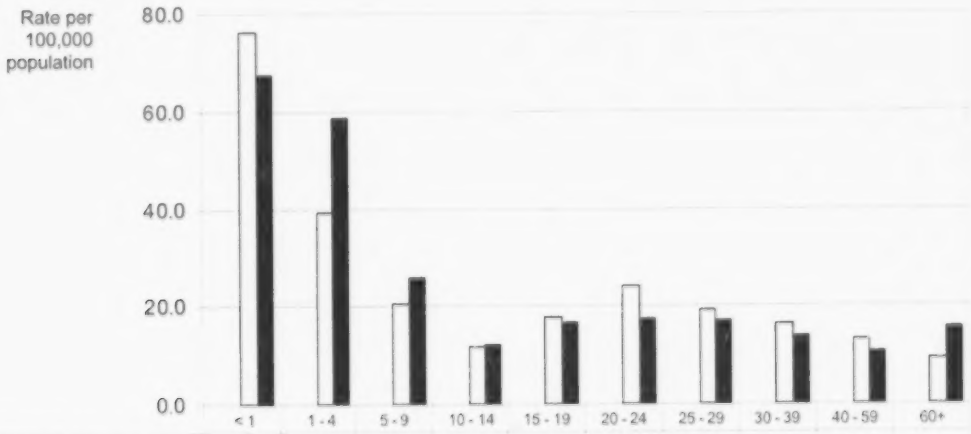
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Salmonellosis Reports	938	992	842	859	820	644	651	687	689	678
—●— BC Salmonellosis Rate	27.0	27.8	22.9	22.7	21.1	16.3	16.3	17.1	17.0	16.5
—×— Canadian Salmonellosis Rate	24.6	24.3	22.1	21.8	22.2	20.1	23.3	18.4	18.0	16.9

Salmonellosis Rates by Health Region, 2001



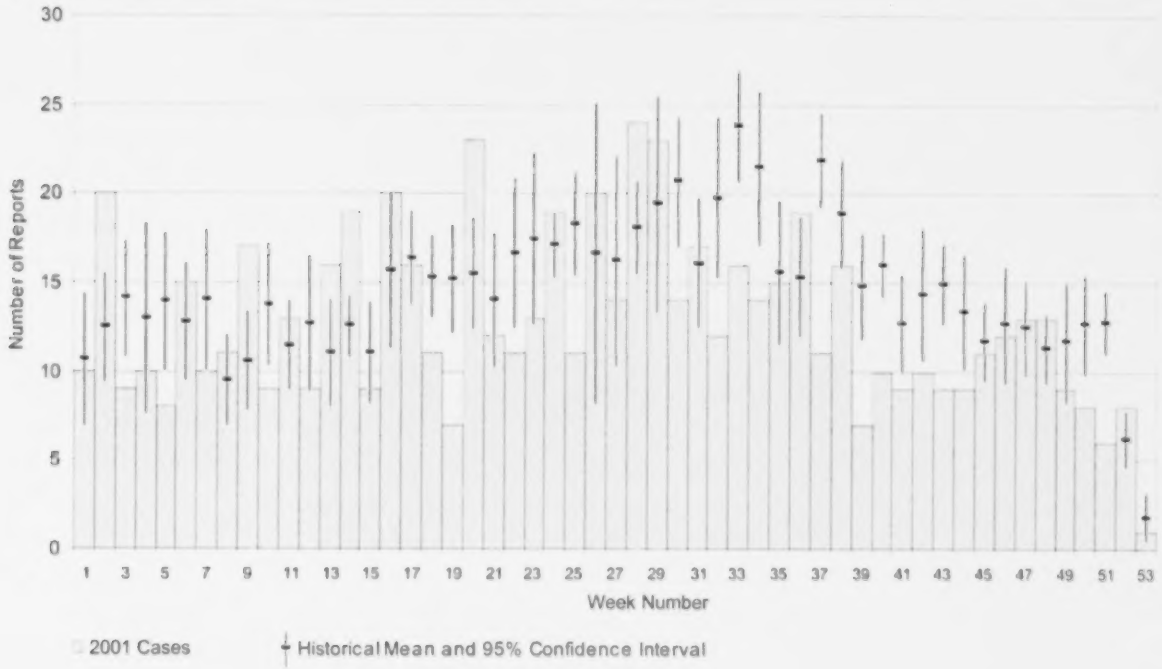
HR	Health Region	Cases	Rate
1	East Kootenay	12	14.3
2	West Kootenay - Boundary	7	8.5
3	North Okanagan	15	12.4
4	South Okanagan - Similkameen	37	15.5
5	Thompson	29	21.0
6	Fraser Valley	33	13.5
7	South Fraser Valley	118	20.4
8	Simon Fraser	101	19.5
9	Coast Garibaldi	14	17.4
10	Central Vancouver Island	35	14.2
11	Upper Island/Central Coast	15	12.3
12	Cariboo	0	0.0
13	North West	6	6.5
14	Peace Liard	0	0.0
15	Northern Interior	10	7.4
16	Vancouver	136	23.2
18	North Shore	22	12.2
19	Richmond	41	24.6
20	Capital	47	14.0

Salmonellosis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Salmonellosis Reports - Female	15	33	25	15	23	32	26	53	77	36
Salmonellosis Reports - Male	14	52	33	16	23	24	23	45	63	50
□ Salmonellosis Rate - Female	76.3	39.0	20.6	11.8	17.5	23.8	19.1	16.2	12.9	9.3
■ Salmonellosis Rate - Male	67.4	58.4	25.6	11.9	16.5	17.4	17.0	13.7	10.6	15.5

2001 Salmonellosis Reports Compared to Historical Numbers from 1992 to 2000 (excluding outbreak cases in weeks 20 and 21 of 1993)



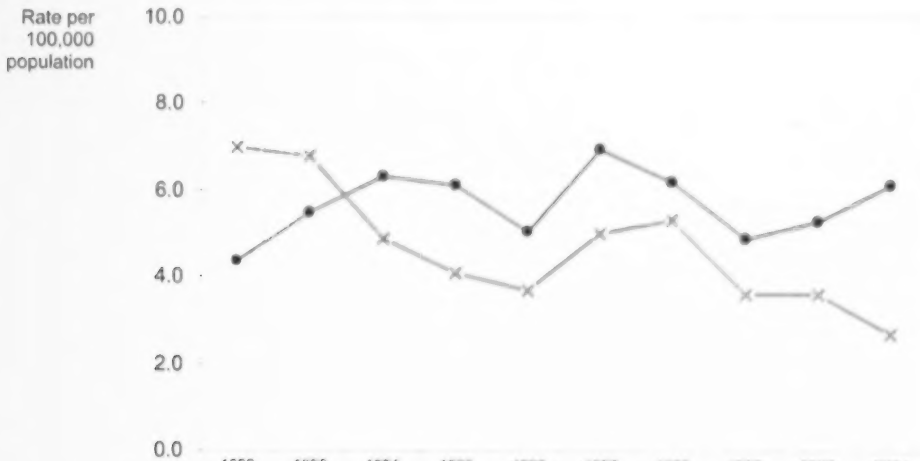
Shigellosis

Shigellosis reporting rose to its highest level in 4 years. There were 251 cases reported for a rate of 6.1 cases per 100,000 population. Vancouver had the highest rate at 15.7 cases per 100,000 population, more than double the provincial average. Peaks in reporting occurred among children aged 1 through 4 and adult females aged 25 through 29 and males 30 to 39 years of age.

The majority of shigellosis cases are in travellers. Two outbreaks of *Shigella* infections not related to travel were identified in BC in 2001:

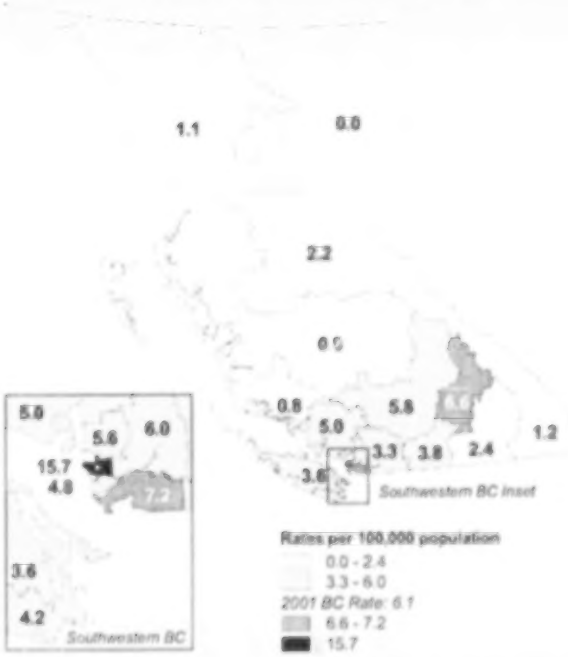
- Repeat clusters of *Shigella sonnei* infections were identified among men who have sex with men (MSM) in the lower mainland, particularly in Vancouver. No common exposures except high risk sexual practices were found among cases. Educational materials about sexual transmission of *Shigella* targeted at MSM were produced in response to the outbreak.
- In May and June, a provincial outbreak of *Shigella sonnei* infections occurred. Thirty-nine cases whose isolates had a common PFGE pattern were identified. A case-control study associated the outbreak with eating or handling fresh, locally produced, spinach. The spinach was recalled from the market.

Shigellosis Rates by Year, 1992-2001



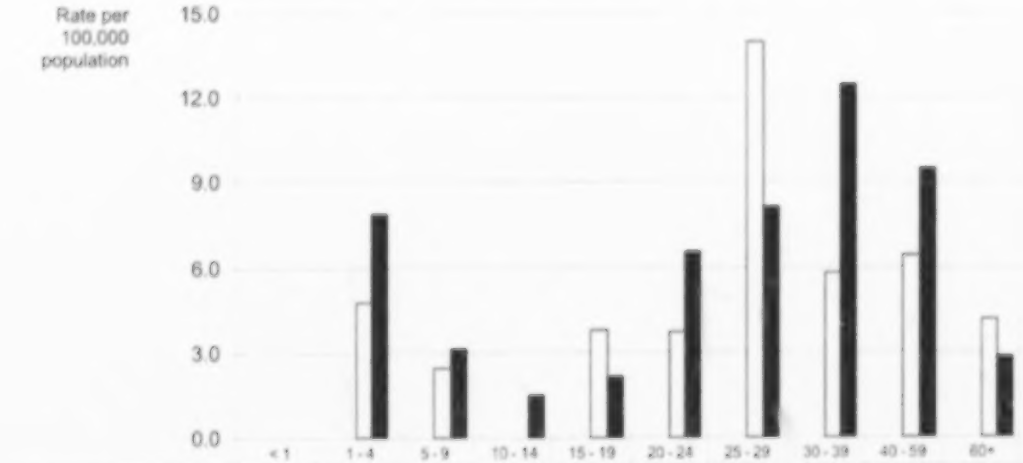
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Shigellosis Reports	152	196	232	231	196	275	247	196	215	251
BC Shigellosis Rate	4.4	5.5	6.3	6.1	5.0	6.9	6.2	4.9	5.3	6.1
Canadian Shigellosis Rate	7.0	6.8	4.9	4.1	3.7	5.0	5.3	3.6	3.6	2.7

Shigellosis Rates by Health Region, 2001



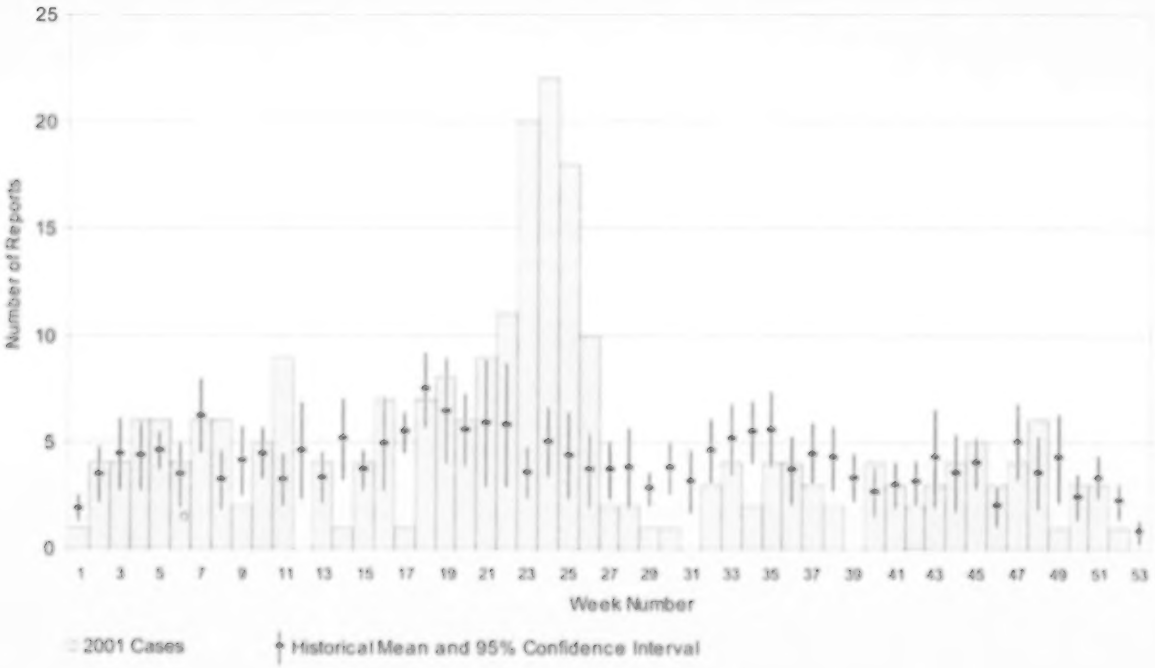
HR	Health Region	Cases	Rate
1	East Kootenay	1	1.2
2	West Kootenay - Boundary	2	2.4
3	North Okanagan	6	6.6
4	South Okanagan - Similkameen	9	3.6
5	Thompson	6	5.8
6	Fraser Valley	8	3.3
7	South Fraser Valley	42	7.2
8	Simon Fraser	31	6.0
9	Coast Garibaldi	4	5.0
10	Central Vancouver Island	9	3.6
11	Upper Island/Central Coast	1	0.8
12	Cariboo	0	0.0
13	North West	1	1.1
14	Peace Liard	0	0.0
15	Northern Interior	3	2.2
16	Vancouver	92	15.7
18	North Shore	10	5.6
19	Richmond	8	4.8
20	Capital	14	4.2

Shigellosis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Shigellosis Reports - Female	0	4	3	0	5	5	19	19	38	16
Shigellosis Reports - Male	0	7	4	2	3	9	11	41	56	9
Shigellosis Rate - Female	0.0	4.7	2.5	0.0	3.8	3.7	14.0	5.8	6.4	4.1
Shigellosis Rate - Male	0.0	7.9	3.1	1.5	2.1	6.5	8.1	12.5	9.4	2.8

2001 Shigellosis Reports Compared to Historical Numbers from 1992 to 2000



Trichinosis

No cases were reported in 2001.

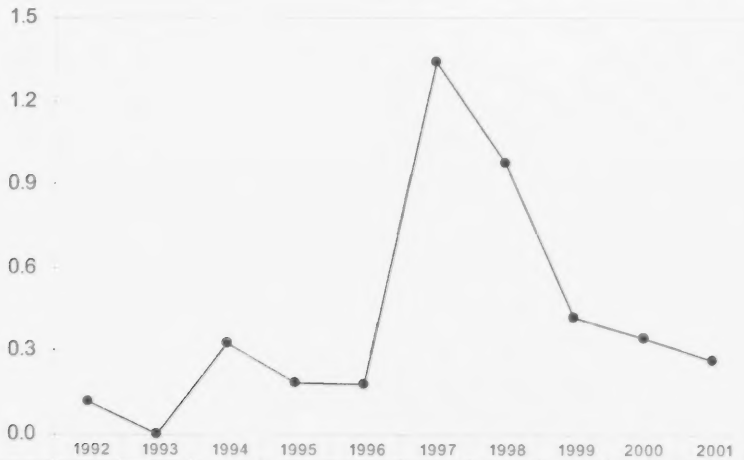
Typhoid Fever

Eighteen cases were reported in 2001.

Vibrio parahaemolyticus

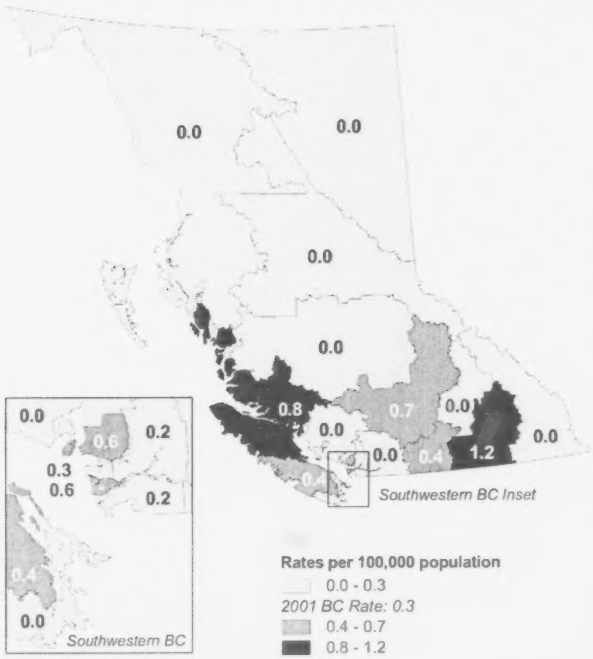
Eleven cases of *Vibrio parahaemolyticus* gastroenteritis were reported in 2001 for a rate of 0.3 cases per 100,000 population. All cases were in adults 25 years of age and older. Six cases were related to eating raw bivalve shellfish purchased in local restaurants or stores.

Vibrio parahaemoyticus Rates by Year, 1992-2001



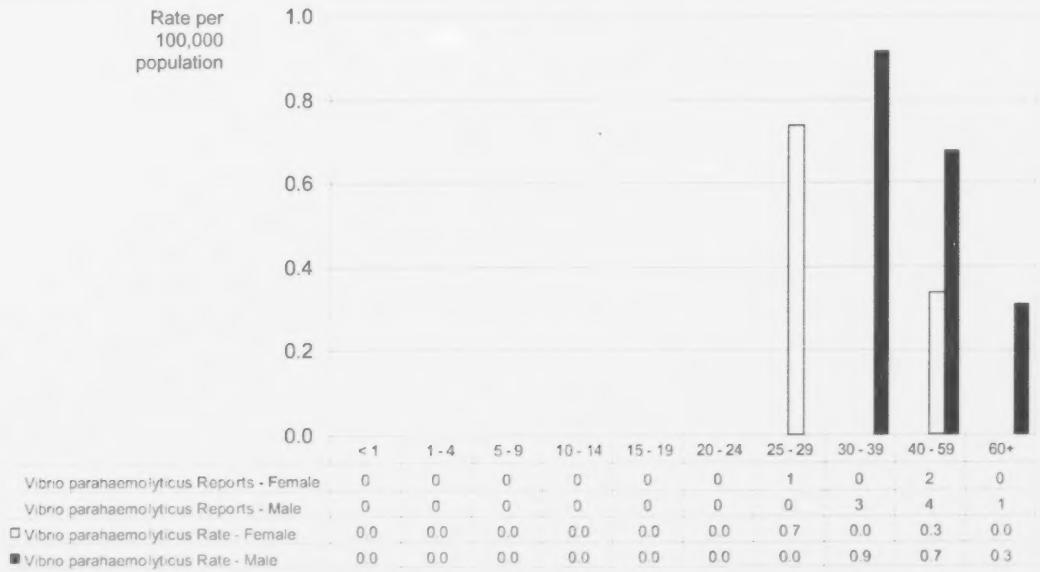
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Vibrio parahaemolyticus Reports	4	0	12	7	7	53	39	17	14	11
BC Vibrio parahaemolyticus Rate	0.1	0.0	0 3	0 2	0.2	1.3	1.0	0.4	0 3	0.3

Vibrio parahaemolyticus Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	1	1.2
3	North Okanagan	0	0.0
4	South Okanagan - Similkameen	1	0.4
5	Thompson	1	0.7
6	Fraser Valley	0	0.0
7	South Fraser Valley	1	0.2
8	Simon Fraser	1	0.2
9	Coast Garibaldi	0	0.0
10	Central Vancouver Island	1	0.4
11	Upper Island/Central Coast	1	0.8
12	Cariboo	0	0.0
13	North West	0	0.0
14	Peace Liard	0	0.0
15	Northern Interior	0	0.0
16	Vancouver	2	0.3
18	North Shore	1	0.6
19	Richmond	1	0.6
20	Capital	0	0.0

Vibrio parahaemolyticus Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Vibrio parahaemolyticus Reports - Female	0	0	0	0	0	0	1	0	2	0
Vibrio parahaemolyticus Reports - Male	0	0	0	0	0	0	0	3	4	1
Vibrio parahaemolyticus Rate - Female	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.0
Vibrio parahaemolyticus Rate - Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.7	0.3

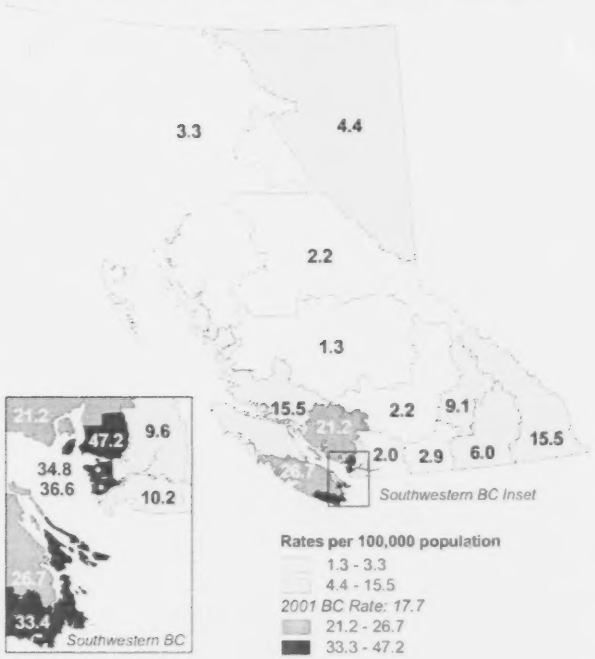
Yersiniosis

Yersiniosis reporting fell by 29% from the previous year to its lowest level in more than a decade. There were 727 cases reported during 2001 for a rate of 17.7 cases per 100,000 population. *Yersinia enterocolitica* accounts for the majority of cases reported. North Shore had the highest regional rate at 47.2 cases per 100,000 population followed by Richmond and Vancouver with rates of 36.6 and 34.8 cases per 100,000 population respectively. These regions (North Shore, Richmond and Vancouver) are served primarily by an outpatient laboratory which performs cold enrichment on stool specimens. Yersiniosis reporting fell in all age groups in 2001, but the decline was most noticeable in males under 5 years, for whom there was a 64 % reduction from the preceding year. The reasons for this are not clear.

Yersiniosis Rates by Year, 1992-2001

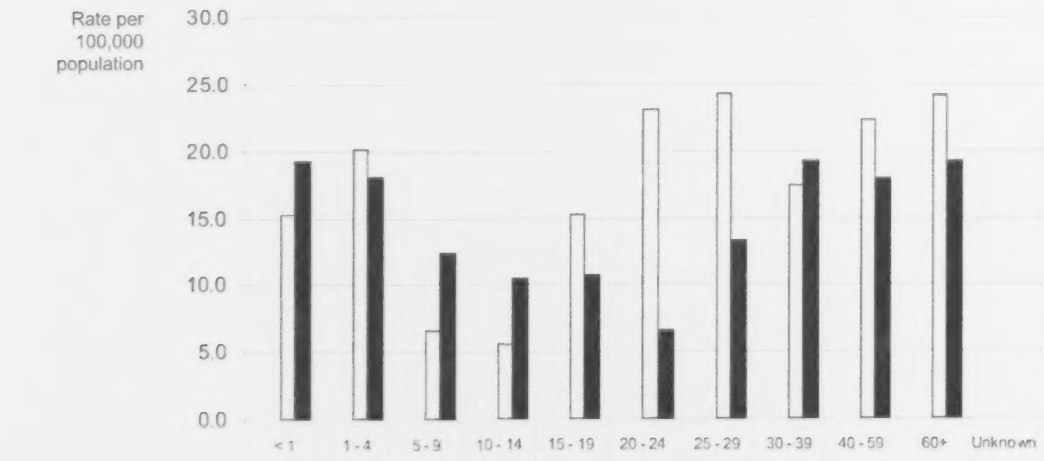
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Yersiniosis Reports	893	845	785	976	883	939	1154	977	1022	727
BC Yersiniosis Rate	25.7	23.7	21.3	25.8	22.7	23.7	28.9	24.3	25.1	17.7

Yersiniosis Rates by Health Region, 2001



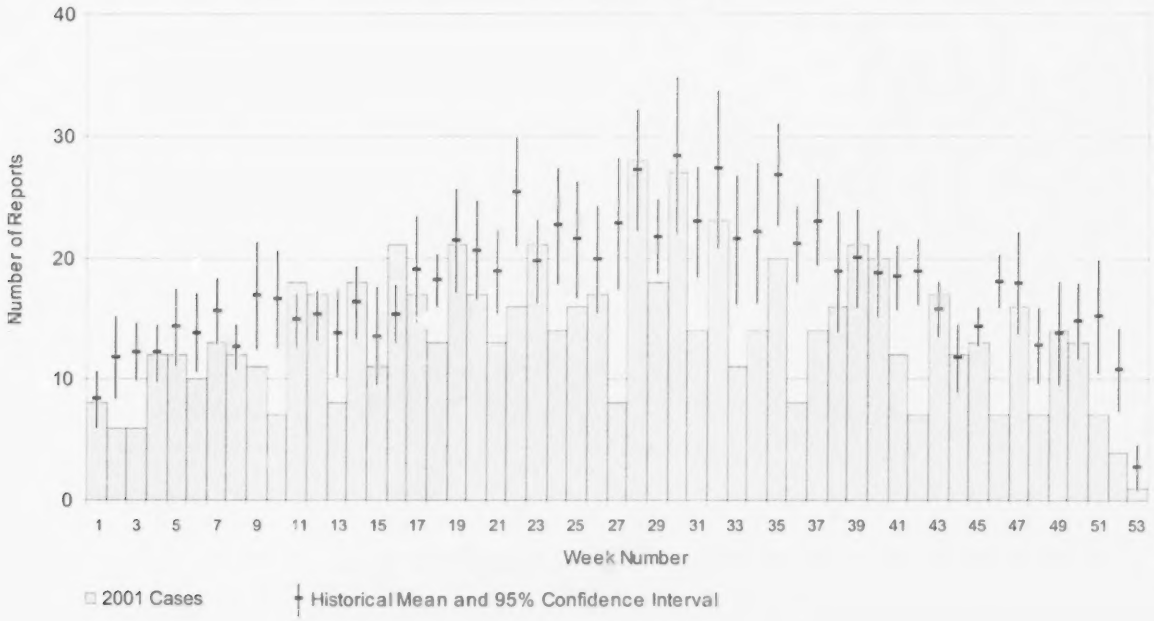
HR	Health Region	Cases	Rate
1	East Kootenay	13	15.5
2	West Kootenay - Boundary	5	6.0
3	North Okanagan	11	9.1
4	South Okanagan - Similkameen	7	2.9
5	Thompson	3	2.2
6	Fraser Valley	5	2.0
7	South Fraser Valley	59	10.2
8	Simon Fraser	50	9.6
9	Coast Garibaldi	17	21.2
10	Central Vancouver Island	66	26.7
11	Upper Island/Central Coast	19	15.5
12	Cariboo	1	1.3
13	North West	3	3.3
14	Peace Liard	3	4.4
15	Northern Interior	3	2.2
16	Vancouver	204	34.8
18	North Shore	85	47.2
19	Richmond	61	36.6
20	Capital	112	33.4

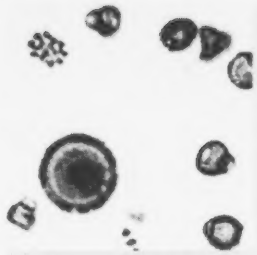
Yersiniosis Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+	Unknown
Yersiniosis Reports - Female	3	17	8	7	20	31	33	57	133	93	2
Yersiniosis Reports - Male	4	16	16	14	15	9	18	63	106	62	0
Yersiniosis Rate - Female	15.3	20.1	6.6	5.5	15.2	23.0	24.3	17.4	22.3	24.1	
Yersiniosis Rate - Male	19.2	18.0	12.4	10.4	10.7	6.5	13.3	19.2	17.8	19.2	

2001 Yersiniosis Reports Compared to historical numbers from 1992 to 2000 (excluding outbreak cases in weeks 47 and 48 of 1998)


Number of Reports
40
30
20
10
0
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53
Week Number
2001 Cases
Historical Mean and 95% Confidence Interval



Vectorborne and Other Zoonotic Diseases

Hantavirus Pulmonary Syndrome

No cases were reported in 2001.

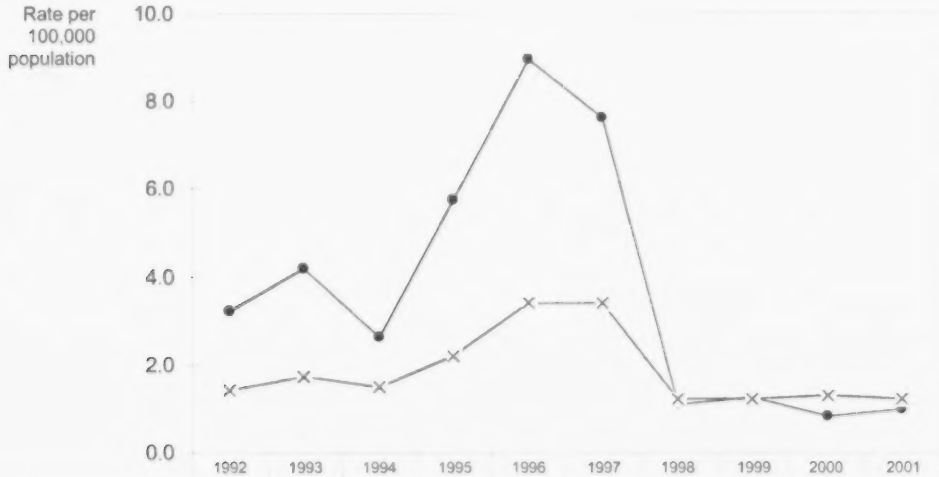
Lyme Disease

Three cases of Lyme disease were reported in 2001. One case was associated with exposure on Vancouver Island, and one case was associated with a tick bite in Europe. Exposure information was not available for the third case.

Malaria

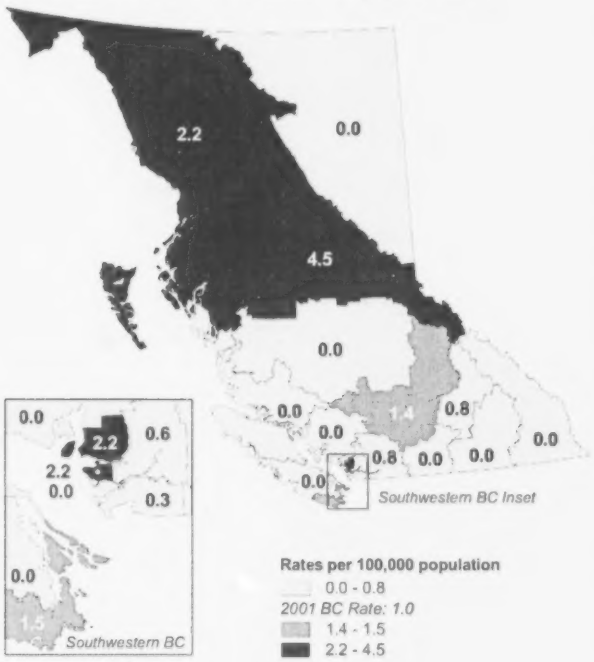
Malaria reporting has remained low for the past 5 years following a peak in the years 1995 through 1997. In 2001, forty cases were reported for a rate of 1.0 case per 100,000 population. The highest reporting rate was in the 20 to 24 year age group. Eight cases were reported in children under the age of 15 years.

Malaria Rates by Year, 1992-2001



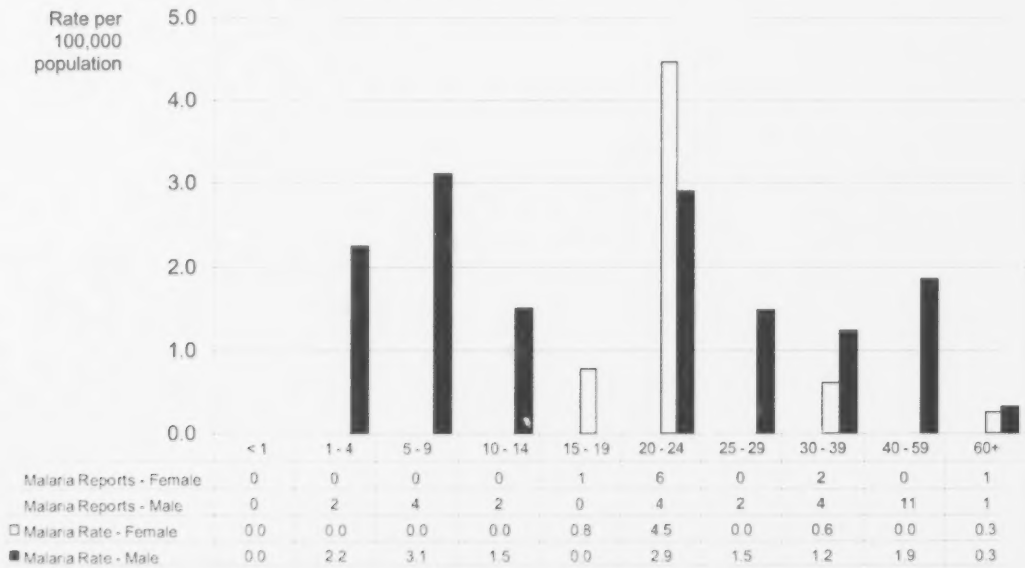
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
BC Malaria Reports	111	149	96	217	348	302	44	50	33	40
—●— BC Malaria Rate	3.2	4.2	2.6	5.7	9.0	7.6	1.1	1.2	0.8	1.0
—×— Canadian Malaria Rate	1.4	1.7	1.5	2.2	3.4	3.4	1.2	1.2	1.3	1.2

Malaria Rates by Health Region, 2001



HR	Health Region	Cases	Rate
1	East Kootenay	0	0.0
2	West Kootenay - Boundary	0	0.0
3	North Okanagan	1	0.8
4	South Okanagan - Similkameen	0	0.0
5	Thompson	2	1.4
6	Fraser Valley	2	0.8
7	South Fraser Valley	2	0.3
8	Simon Fraser	3	0.6
9	Coast Garibaldi	0	0.0
10	Central Vancouver Island	0	0.0
11	Upper Island/Central Coast	0	0.0
12	Cariboo	0	0.0
13	North West	2	2.2
14	Peace Liard	0	0.0
15	Northern Interior	6	4.5
16	Vancouver	13	2.2
18	North Shore	4	2.2
19	Richmond	0	0.0
20	Capital	5	1.5

Malaria Rates by Age Group and Sex, 2001



	< 1	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 39	40 - 59	60+
Malaria Reports - Female	0	0	0	0	1	6	0	2	0	1
Malaria Reports - Male	0	2	4	2	0	4	2	4	11	1
Malaria Rate - Female	0.0	0.0	0.0	0.0	0.8	4.5	0.0	0.6	0.0	0.3
Malaria Rate - Male	0.0	2.2	3.1	1.5	0.0	2.9	1.5	1.2	1.9	0.3

Reportable Communicable Diseases in BC

May 2002

SCHEDULE A: (reportable by all sources including laboratories)

Anthrax
Acquired Immune Deficiency Syndrome
Botulism
Brucellosis
Cholera
Congenital Infections:
- Toxoplasmosis, Rubella, Cytomegalovirus, Herpes Simplex, Varicella-Zoster, Hepatitis B Virus, Listeriosis and any other congenital infection

Cryptosporidiosis
Cyclospora infection
Diffuse Lamellar Keratitis
Diphtheria:
- Cases
- Carriers

Encephalitis:
- Post-infectious
- Subacute sclerosing panencephalitis
- Vaccine-related
- Viral

Foodborne illness:
- All causes

Gastroenteritis epidemic:
- Bacterial
- Parasitic
- Viral

Genital Chlamydia Infection
Giardiasis
Haemophilus Influenzae Disease:
- All Invasive, by Type

Hantavirus Pulmonary Syndrome
Hemorrhagic Viral Fevers
Hemolytic Uremic Syndrome (HUS)
Hepatitis Viral:
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis E
- Other Viral Hepatitis

Invasive Group A Streptococcal Disease
Invasive *Streptococcus Pneumoniae* Infection
Leprosy
Lyme Disease
Measles
Meningitis: All causes
- (i) Bacterial: Hemophilus
  Pneumococcal
  Other
- (ii) Viral

Meningococcal Disease:
- All Invasive
- Including Primary Meningococcal Pneumonia and Primary Meningococcal Conjunctivitis

Mumps
Neonatal Group B Streptococcal Infection
Pertussis (Whooping Cough)
Paralytic Shellfish Poisoning (PSP)
Plague
Poliomyelitis
Rabies
Reye Syndrome
Rubella
Tetanus
Transfusion Transmitted Infection
Tuberculosis
Typhoid Fever and Paratyphoid Fever
Venereal Disease:
- Chancroid
- Gonorrhea - all sites
- Syphilis

Waterborne Illness:
- All causes

Yellow Fever

SCHEDULE B: (reportable by laboratories only)

All specific bacterial and viral stool pathogens:
- (i) Bacterial:
  Campylobacter
  Salmonella
  Shigella
  Yersinia
- (ii) Viral

Amoebiasis
Borrelia burgdorferi infection
Cerebrospinal Fluid Micro-organisms
Chlamydial Diseases, including Psittacosis
Herpes Genitalis
Influenza
Legionellosis
Leptospirosis
Listeriosis
Malaria
Methicillin-Resistant *Staphylococcus aureus* (MRSA)
Q Fever
Rickettsial Diseases
Vancomycin-Resistant Enterococci (VRE)

2001 B.C. Selected Notifiable Disease Case Reports by Health Authority

	BC Total	East Kootenay	West Kootenay Boundary	North Okanagan	South Okanagan Similk	Thompson	Fraser Valley	South Fraser Valley
2001 Population	4,096,894	83,859	82,760	121,258	238,762	138,250	244,637	579,401
AIDS	38	1	0	0	2	0	0	2
Amebiasis	347	0	0	0	0	3	11	47
Campylobacteriosis	2100	32	24	51	88	44	76	306
Chlamydia	5887	106	91	146	398	393	129	409
Cryptosporidiosis	167	11	4	15	4	14	14	25
Cyclosporidasis	39	0	0	0	0	0	1	8
Verotoxigenic *E. coli*	133	5	3	9	21	5	7	20
Giardiasis	833	13	18	28	17	23	39	124
Gonorrhea	618	0	1	1	12	4	10	46
***Haemophilus influenza* type b, invasive**	6	0	0	1	0	0	1	1
Hepatitis A	96	8	1	0	4	2	5	12
Hepatitis B: Acute	98	2	0	2	7	5	3	17
Hepatitis B: Undetermined	236	0	4	1	5	0	8	27
Hepatitis B: Chronic	2497	1	3	7	10	13	29	242
Hepatitis C	4406	63	57	151	214	199	385	439
Hepatitis E	3	0	0	0	0	0	0	0
HIV	440	0	5	2	8	10	12	35
Malaria	40	0	0	1	0	2	2	2
Measles	23	0	0	0	0	0	8	2
Meningococcal Disease, invasive	53	0	2	0	2	2	12	9
Methicillin Resistant *Staphylococcus aureus*	1146	1	10	35	30	27	129	224
Mumps	25	0	0	0	0	0	3	14
Pertussis	643	73	19	15	63	1	87	89
Pneumococcal Disease, invasive	185	0	4	10	1	19	12	7
Rubella	2	0	0	0	0	0	0	0
Salmonellosis	678	12	7	15	37	29	33	118
Shigellosis	251	1	2	8	9	8	8	42
Streptococcal Group A Disease, invasive	112	0	0	4	0	7	9	16
Syphilis	177	0	1	1	5	0	6	19
Tuberculosis	391	0	1	3	6	9	15	70
Vancomycin Resistant Enterococci	33	4	1	1	1	1	1	8
Vibrio parahaemolyticus	11	0	1	0	1	1	0	1
Yersiniosis	727	13	5	11	7	3	5	59
Less Common Diseases								
Botulism	2	0	0	0	0	0	0	0
Hantavirus	0	0	0	0	0	0	0	0
Leprosy	2	0	0	0	0	0	0	0
Listeriosis	5	0	0	0	0	0	0	0
Lyme Disease	3	0	1	1	0	0	0	0
Trichinosis	0	0	0	0	0	0	0	0
Typhoid	18	0	0	0	0	0	3	9

Simon Fraser	Coast Garibaldi	Cent Van Island	Upper Island	Cariboo	North West	Peace Liard	North Interior	Vancouver	Richmond	North Shore	Capital Region
518,392	80,301	247,253	122,342	77,686	92,162	67,766	134,672	585,462	166,501	180,131	335,299
6	2	2	0	0	0	0	2	13	2	1	1
35	6	4	6	0	1	0	0	189	9	8	28
321	50	92	61	15	11	2	24	430	127	123	223
380	124	421	225	146	211	85	322	1398	179	163	561
9	5	11	2	0	0	1	1	32	2	5	12
3	0	0	0	0	0	0	0	22	0	1	4
19	3	8	0	2	0	0	3	12	2	4	10
69	29	29	16	3	10	7	18	260	22	39	69
51	2	12	7	1	7	8	7	384	12	18	35
0	1	0	0	0	0	0	0	1	1	0	0
7	10	1	2	8	1	1	5	14	3	5	7
7	3	6	12	2	0	0	1	24	0	1	6
64	4	1	0	3	5	0	3	0	2	65	44
462	7	22	6	3	2	0	1	1220	445	12	12
605	93	315	142	50	94	42	120	885	75	74	403
1	0	0	0	0	0	0	0	2	0	0	0
38	5	12	2	2	1	0	9	253	1	9	36
3	0	0	0	0	2	0	6	13	0	4	5
3	0	0	0	0	0	0	0	2	8	0	0
4	1	6	0	0	0	0	3	7	1	0	4
122	10	46	32	10	35	6	43	241	64	39	42
0	2	1	0	1	0	0	0	3	0	1	0
30	27	33	7	22	14	11	4	39	9	52	48
19	2	2	1	0	0	3	27	30	11	4	33
0	0	0	0	0	0	0	0	0	1	0	1
101	14	35	15	0	6	0	10	136	41	22	47
31	4	9	1	0	1	0	3	92	8	10	14
18	1	5	1	1	0	0	6	25	2	3	14
19	1	5	0	1	2	0	0	99	4	11	3
47	2	7	8	3	8	4	7	150	29	9	13
2	0	0	0	0	0	1	0	10	1	1	1
1	0	1	1	0	0	0	0	2	1	1	0
50	17	66	19	1	3	3	3	204	61	85	112
0	0	0	0	0	2	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	1	0
1	0	1	0	0	0	0	0	0	0	2	1
0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	4	0	0	1

2001 B.C. Selected Notifiable Disease Case Rates by Health Authority

	BC Total	East Kootenay	West Kootenay-Boundary	North Okanagan	South Okanagan Similk	Thompson	Fraser Valley	South Fraser Valley
2001 Population	4,096,894	83,859	82,760	121,258	238,762	138,250	244,637	579,401
AIDS	0.9	1.2	0.0	0.0	0.8	0.0	0.0	0.3
Amebiasis	8.5	0.0	0.0	0.0	0.0	2.2	4.5	8.1
Campylobacteriosis	51.3	38.2	29.0	42.1	36.9	31.8	31.1	52.8
Chlamydia	143.7	126.4	110.0	120.4	166.7	284.3	52.7	70.6
Cryptosporidiosis	4.1	13.1	4.8	12.4	1.7	10.1	5.7	4.3
Cyclosporidasis	1.0	0.0	0.0	0.0	0.0	0.0	0.4	1.4
Verotoxigenic *E. coli*	3.2	6.0	3.6	7.4	8.8	3.6	2.9	3.5
Giardiasis	20.3	15.5	21.7	23.1	7.1	16.6	15.9	21.4
Gonorrhea	15.1	0.0	1.2	0.8	5.0	2.9	4.1	7.9
***Haemophilus influenza* type b, invasive**	0.1	0.0	0.0	0.8	0.0	0.0	0.4	0.2
Hepatitis A	2.3	9.5	1.2	0.0	1.7	1.4	2.0	2.1
Hepatitis B: Acute	2.4	2.4	0.0	1.6	2.9	3.6	1.2	2.9
Hepatitis B: Undetermined	5.8	0.0	4.8	0.8	2.1	0.0	3.3	4.7
Hepatitis B: Chronic	60.9	1.2	3.6	5.8	4.2	9.4	11.9	41.8
Hepatitis C	107.5	75.1	68.9	124.5	89.6	143.9	157.4	75.8
Hepatitis E	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HIV	10.7	0.0	6.0	1.6	3.4	7.2	4.9	6.0
Malaria	1.0	0.0	0.0	0.8	0.0	1.4	0.8	0.3
Measles	0.6	0.0	0.0	0.0	0.0	0.0	3.3	0.3
Meningococcal Disease, invasive	1.3	0.0	2.4	0.0	0.8	1.4	4.9	1.6
Methicillin Resistant *Staphylococcus aureus*	28.0	1.2	12.1	28.9	12.6	19.5	52.7	38.7
Mumps	0.6	0.0	0.0	0.0	0.0	0.0	1.2	2.4
Pertussis	15.7	87.1	23.0	12.4	26.4	0.7	35.6	15.4
Pneumococcal Disease, invasive	4.5	0.0	4.8	8.2	0.4	13.7	4.9	1.2
Rubella	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmonellosis	16.5	14.3	8.5	12.4	15.5	21.0	13.5	20.4
Shigellosis	6.1	1.2	2.4	6.6	3.8	5.8	3.3	7.2
Streptococcal Group A Disease, invasive	2.7	0.0	0.0	3.3	0.0	5.1	3.7	2.8
Syphilis	4.3	0.0	1.2	0.8	2.1	0.0	2.5	3.3
Tuberculosis	9.5	0.0	1.2	2.5	2.5	6.5	6.1	12.1
Vancomycin Resistant Enterococci	0.8	4.8	1.2	0.8	0.4	0.7	0.4	1.4
Vibrio parahaemolyticus	0.3	0.0	1.2	0.0	0.4	0.7	0.0	0.2
Yersiniosis	17.7	15.5	6.0	9.1	2.9	2.2	2.0	10.2
Less Common Diseases								
Botulism	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hantavirus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leprosy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Listeriosis	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lyme Disease	0.1	0.0	1.2	0.8	0.0	0.0	0.0	0.0
Trichinosis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Typhoid	0.4	0.0	0.0	0.0	0.0	0.0	1.2	1.6

Simon Fraser	Coast Garibaldi	Cent Van Island	Upper Island	Cariboo	North West	Peace Liard	North Interior	Vancouver	Richmond	North Shore	Capital Region
518,392	80,301	247,253	122,342	77,686	92,162	67,766	134,672	585,462	166,501	180,131	335,299
1.2	2.5	0.8	0.0	0.0	0.0	0.0	1.5	2.2	1.2	0.6	0.3
6.8	7.5	1.6	4.9	0.0	1.1	0.0	0.0	32.3	5.4	4.4	8.4
61.9	62.3	37.2	49.9	19.3	11.9	3.0	17.8	73.4	76.3	68.3	66.5
73.3	154.4	170.3	183.9	187.9	228.9	125.4	239.1	238.8	107.5	90.5	167.3
1.7	6.2	4.4	1.6	0.0	0.0	1.5	0.7	5.5	1.2	2.8	3.6
0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.6	1.2
3.7	3.7	3.2	0.0	2.6	0.0	0.0	2.2	2.0	1.2	2.2	3.0
13.3	36.1	11.7	13.1	3.9	10.9	10.3	13.4	44.4	13.2	21.7	20.6
9.8	2.5	4.9	5.7	1.3	7.6	11.8	5.2	65.6	7.2	10.0	10.4
0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0
1.4	12.5	0.4	1.6	10.3	1.1	1.5	3.7	2.4	1.8	2.8	2.1
1.4	3.7	2.4	9.8	2.6	0.0	0.0	0.7	4.1	0.0	0.6	1.8
12.3	5.0	0.4	0.0	3.9	5.4	0.0	2.2	0.0	1.2	36.1	13.1
89.1	8.7	8.9	4.9	3.9	2.2	0.0	0.7	208.4	267.3	6.7	3.6
116.7	115.8	127.4	116.1	64.4	102.0	62.0	89.1	151.2	45.0	41.1	120.2
0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
7.3	6.2	4.9	1.6	2.6	1.1	0.0	6.7	43.2	0.6	5.0	10.7
0.6	0.0	0.0	0.0	0.0	2.2	0.0	4.5	2.2	0.0	2.2	1.5
0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.8	0.0	0.0
0.8	1.2	2.4	0.0	0.0	0.0	0.0	2.2	1.2	0.6	0.0	1.2
23.5	12.5	18.6	26.2	12.9	38.0	8.9	31.9	41.2	38.4	21.7	12.5
0.0	2.5	0.4	0.0	1.3	0.0	0.0	0.0	0.5	0.0	0.6	0.0
5.8	33.6	13.3	5.7	28.3	15.2	16.2	3.0	6.7	5.4	28.9	14.3
3.7	2.5	0.8	0.8	0.0	0.0	4.4	20.0	5.1	6.6	2.2	9.8
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.3
19.5	17.4	14.2	12.3	0.0	6.5	0.0	7.4	23.2	24.6	12.2	14.0
6.0	5.0	3.6	0.8	0.0	1.1	0.0	2.2	15.7	4.8	5.6	4.2
3.5	1.2	2.0	0.8	1.3	0.0	0.0	4.5	4.3	1.2	1.7	4.2
3.7	1.2	2.0	0.0	1.3	2.2	0.0	0.0	16.9	2.4	6.1	0.9
9.1	2.5	2.8	6.5	3.9	8.7	5.9	5.2	25.6	17.4	5.0	3.9
0.4	0.0	0.0	0.0	0.0	0.0	1.5	0.0	1.7	0.6	0.6	0.3
0.2	0.0	0.4	0.8	0.0	0.0	0.0	0.0	0.3	0.6	0.6	0.0
9.6	21.2	26.7	15.5	1.3	3.3	4.4	2.2	34.8	36.6	47.2	33.4
0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	0.0
0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.3
0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.3

Sources

1) Cases are reported through the Public Health Information System (PHIS) collected from all health regions in British Columbia.

2) Population projections are from Health Data Warehouse – Ministry of Health and Ministry Responsible for Seniors. HDW release date: August 2001.

3) National rates are provided by Health Canada – Population and Public Health Branch. All published 2000 and 2001 national rates are preliminary numbers subject to change.

4) Amebiasis is no longer a national notifiable disease as of year 2000. HIV, streptococcal group A disease (invasive), Vibrio parahaemolyticus, and yersiniosis are not nationally notifiable diseases.

5) Data for influenza, invasive meningococcal disease, and invasive group A streptococcal disease are collected through enhanced surveillance.

6) Health Region Boundaries are from BC STATS, Ministry of Finance and Corporate Relations. BC Health Regions were changed in December 2001. Regional boundaries used in this report are for the period January 1, 2001 – December 12, 2001.

7) Numbers for hepatitis C from years 1992-2000 have changed from previous year's annual report due to incomplete duplicate clean-up by Feb 28, 2002.

8) Numbers in this report were generated between March 1, 2002 to March 15, 2002 and may be adjusted due to late reporting and duplicate clean up in future published reports.

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